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ABSTRACT

Workshop proceedings in San Francisco and Los Angeles concerning the development of the Management Approach to Teaching Consumer and Homemaking Education (MATCHE) are examined in this report. Basic information gleaned from presentations, reports, and transcripts of taped lectures of both workshops are included. Subjects contained in the report are history of MATCHE, what MATCHE is, why MATCHE is important now, how it can be used, drafting a model in the management areas, building models-introduction, challenge and plans for implementation, and future developments of MATCHE. Following the summary are several appendixes: program of workshop events, an organizational chart of MATCHE, explanation and illustration of cybernetic models, an example of a model for use in the area of management, directions for development summary of the MATCHE strand worksheets, an evaluation form, and a list of workshop participants. (Other area workshop proceedings [CE 019 897-899] are also available, along with the resulting learning modules [CE 019 901-967] and strategies for tying MATCHE to FHA-HERO [CE 019 900].) (CT)

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MATCHE

MANAGEMENT
APPROACH TO
TEACHING
CONSUMER AND
HOMEMAKING
EDUCATION

PROCEEDINGS

MATCHE I WORKSHOP

San Francisco
April 7-8, 1975

Los Angeles
April 10-11, 1975

CE 019 896

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
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CE 019 896

INTRODUCTION

The Management Approach to Teaching Consumer and Homemaking Education represents an innovative response to the current trends in education toward individualized and competency-based instruction. In the following pages you will learn how the MATCHE curriculum began, the philosophy on which the curriculum is based, how these curriculum materials were developed and how they may be used in a variety of settings. This information was gleaned from two workshops held for the purpose of disseminating MATCHE materials. It seemed imperative when planning the MATCHE project that these materials have as broad an exposure as possible. These materials could be used in all public and private institutions responsible for preparing teachers of Home Economics in California as well as other states. In light of this goal consultants from North Dakota and Arizona were invited to participate in the workshops so that the use of MATCHE could begin in those two areas of the country. The materials have also been introduced in Michigan by Dr. Ruth James. These represent important avenues for the implementation of MATCHE.

For those of you who attended the workshops we appreciated your support and participation. Since this is a growing, viable curriculum, I am sure we will see many uses and further developments as universities choose to implement these materials. We hope the workshops have been stimulating and that you will find these proceedings useful in your work with MATCHE.

Best Wishes,

Gwen Cooke

Dr. Gwen Cooke
Workshop Director

FOREWORD

My assignment as editor was to make these proceedings as accurate as possible, but also insure that anyone, in addition to the participants in the workshops, could read the information and be able to see exactly what MATCHE is and how it can be used. To this end, when information was unclear or lacking, the workshop leader was contacted so that these discrepancies could be alleviated. Parts were rewritten for clarity and conciseness and to eliminate redundancy. Sections were also reorganized so that information would follow chronologically and flow smoothly. At times presentations or ideas from presentations were combined to make the report more meaningful and useful. For example, in the "Building of Models" section, not all models developed at the workshops were included. The ones which appear should give the reader a general idea of how to build models and should be looked upon as starting points or illustrations of several individuals' interpretations of how a model could be constructed.

This publication then, does not necessarily represent a verbatum account. Instead, it contains basic information gleaned from presentations, reports and the audible tapes of both workshops.

Ann Burrows, Editor

HISTORY OF MATCHE

by Dr. Ruth James

The history of MATCHE begins in the Fall of 1971, when the California Bureau of Homemaking Education asked the Department of Home Economics at California State Polytechnic University to submit a proposal for the updating of preservice homemaking curriculum for the 1970's. The curriculum model to be constructed was to deal with the areas of 1) consumer education concepts, 2) disadvantaged youth, 3) home economics related occupations, and 4) Future Homemakers of America.

The project evolved under several basic assumptions: 1) rapid changes in society necessitate rapid changes in teacher education; 2) curriculum should reflect the verified needs of student teachers; 3) the basic purpose of a preservice curriculum model is to produce effective instructional programs; 4) preservice instruction must produce measurable changes in the student teachers' instructional ability; 5) an innovative program should not be expected to work perfectly the first time it is tried.

The proposal for the preservice curriculum written by Cal Poly was for a multi-year demonstration and operational program. Specifically, within three years the program would deal with the four areas of concern by the following means:

1) Developing an achievement center which would be operated by a management firm. The goal of this center would be to develop objectives to increase preprofessional skills in the four areas of concern.
2) Establishing criteria for measuring the effectiveness of teaching techniques and providing compensation for the level of effectiveness rather than for the number of students enrolled in the courses.
3) Involving all Cal Poly home economics professors as part of the process so that successful components would be integrated into the regular curriculum.
4) Building evaluation into the project in terms of specifying achievements of students as the basis of payment to the management firm.

The decision to employ a management firm was made because every member of the faculty was carrying a full work load. It was unrealistic, without providing release time, to expect any faculty member to have the time to plan innovative curriculum changes. Also, most college faculties today lack the sophisticated management techniques needed to bring about such changes. It was time to look at higher education as a complex adaptable kind of "business."

The adoption of a systems approach to be used by the management firm was also proposed. This approach would utilize the expertise of the management firm to introduce an innovative, effective curriculum. Assistance would be provided in: model development, preparation of requests for proposals from industry, negotiations and selection of a management firm for the second portion of the project, and management planning for implementation. In fact, managerial and administrative aspects were the major innovations in the project. Evaluating these aspects of the project would show how well and under what conditions the systems approach could be made to work. Thus the management firm would provide an essential element in the success of the program.

In addition to the systems approach, the Cal Poly home economics department would develop a problem-oriented program, custom-made for the needs of student teachers. The department would retain total policy and contract control in cooperation with the Bureau of Homemaking Education.

The project was visualized in three phases. Phase I, the planning phase, extending from December, 1971 through June, 1972, would include the selection of a management firm, the creation of an advisory committee, the selection of a faculty task force and the writing of objectives for the proposed curriculum. The management firm would send out a "request for proposal" to potential bidders in the education industry to obtain a management firm for the second portion of the project.

During phase II, fiscal year 1973, a concerted effort would be made to develop the materials further.

Phase III, fiscal year 1974, would involve the implementation of the program by the Cal Poly home economics department. The model thus developed would then be available for adaptation to the needs of other four-year colleges in California offering a major in home economics.

Each of these phases will now be explored in depth to provide the reader with a chronological sequence of events.

Phase I: Planning

After funding, INSGROUP, Inc., from Long Beach was selected as the initial management firm. After hiring this management group, a faculty task force was appointed, consisting of the five subject matter area chairmen in the home economics department at Cal Poly. INSGROUP held a training session in which the task force viewed a filmstrip and were given a version of Mager to help them in the writing of instructional objectives. Their major task was to apply this training in writing objectives for the model curriculum.

The overall task this group completed was monumental. In spite of phases of discouragement, a certain amount of resistance, distracting assignments and shifting priorities, the objectives were written. These task force objectives as well as suggestions for objectives made in 1972 by teacher education conferees were screened and judged valid. The resulting measurable objectives numbered almost 400.

While organizing the various groups who would work on the objectives, a status study of course offerings in all California universities offering teacher education was conducted.

This status study yielded similar findings to the study of course offerings at Cal Poly and confirmed the Bureau of Homemaking Education's original four areas of concern: although an adequate course of study was offered to prepare graduates to teach homemaking in middle class communities, there was a shortage of courses dealing with the occupational approach, consumer needs, youth group organizations, and ways of reaching the economically depressed area student. The curriculum proposed, therefore, was thought to have the potential for becoming an integral part of projected educational needs for all teacher education programs as well as current California home economics teachers in the 1970's.

At this time also, an advisory committee of 17 people was appointed. It consisted of representatives of minority parents, local businessmen, city government, students, student teachers, school administrators, vocational directors, social workers, faculty members, high school teachers and the Bureau of Homemaking Education.

Through this process then, the curriculum emerged as a three-dimensional model with the five subject matter areas (housing, foods and nutrition, textiles and clothing, human development, management) as the columns, the first three goals (consumer approach, economically depressed area, occupational) as the strands and with Future Homemakers of America integrated as the third dimension in all of the fifteen cells of the model.

Phase II: Development

At the same time the curriculum was being developed, INSGROUP solicited statements of capability from firms in the education industry who would be interested in and capable of helping to further develop the curriculum in phase II. This was accomplished through an ad in the Commerce Business Daily. Twenty-two firms responded and a bidders conference was held. At that conference, Brian Frieder, Vice President of Alpha II (selected as the contractor for phase II), indicated that MATCHE was not ready for a performance contract. The expense of such a contract would be prohibitive. The accepted alternative was to have Alpha II provide an on-site manager who, with the consultative services of the faculty task force, would continue the development of the MATCHE curriculum. The 400 objectives would be clustered into related modules. The expanding of the modules, i.e., the providing of answers to the pre- and post-tests, the constructing of suggested learning activities and appropriate current resources, and the writing of enabling objectives would involve both the faculty task force and senior and graduate students at Cal Poly.

Approximately 40 students, the task force and the project manager participated in the development of the MATCHE curriculum packages during the first year of phase II. During the second year of phase II, the testing of the model began. The occupational strand was the first to be completed and was validated at Cal Poly and California State University, Fresno. These materials served as the basis for new courses as well as for independent study.

Phase III: Implementation/Dissemination

The recommendations and evaluations gained from testing of the model were used to revise the curriculum prior to printing it in the present form. These materials will be used in phase III which begins with this MATCHE I In-service Workshop.

At Cal Poly at this point our faculty feels that we are generally doing a good job of incorporating consumer education into all aspects of the present curriculum. One of the reasons for this is the heavy involvement of the faculty in developing the consumer strand of the curriculum. The occupational strand is now being incorporated into our curriculum, but the faculty has not acted to date to incorporate courses dealing with the economically depressed. MATCHE represents about 2/3 of the course work for junior and senior education majors.

There are two characteristics of the MATCHE curriculum which are especially exciting. One, it is dealing with three important goals for the seventies. Two, it is an individualized delivery system so that students can proceed through the curriculum at their own pace and yet it does not have the limitations of the programmed instruction in which a student works entirely alone.

Thus a new role for student and teacher is provided by MATCHE, which also represents a viable response to rapidly moving changes in society, in people, in work and in the way in which work will be managed. Education is changing to meet the changing society, and MATCHE is part of this trend of change.

WHAT IS MATCHE?

By Maurine Vander Griend

MATCHE is an individualized, competency-based, preservice home economics curriculum. The term MATCHE is an acronym--

M anagement
A pproach to
T eaching
C onsumer and
H omemaking
E ducation

MATCHE is a curriculum designed for home economics education students at the preprofessional level. It is designed for the upper division program or for junior and senior students. It is assumed that students enrolling in the MATCHE curriculum would have had the basic courses in design and color, housing and interior design, human growth and development, management, marriage and personal relationships, foods and nutrition, philosophy, goals and values; psychological and economic factors of community and shelter, food and clothing; textiles and clothing; urban and rural sociological problems and basic courses in education. MATCHE curriculum is not the total curriculum, but rather could constitute approximately 2/3 of the program for junior and senior students in home economics education.

The MATCHE curriculum is based upon approximately 400 instructional objectives written and selected by special committees. These selected objectives cover each subject area of home economics and home economics education, and were written to the four objectives derived from the Vocational Education Amendments of 1968.

These four objectives include emphasizing consumer education in all areas of home economics, providing relevant programs for persons from economically depressed areas, establishing home economics related occupational programs and establishing youth groups. The first three emphases became the "strands" of MATCHE, while the remaining emphasis became the third dimension in a three-dimensional model. (See Figure 1.)

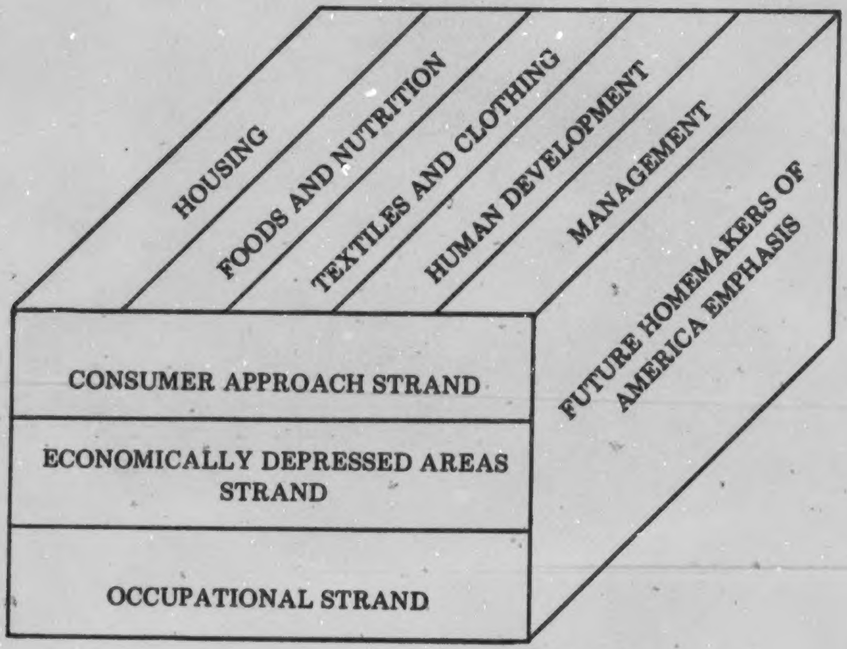
HOUSING
FOODS AND NUTRITION
TEXTILES AND CLOTHING
HUMAN DEVELOPMENT
MANAGEMENT
FUTURE HOMEMAKERS OF AMERICA EMPHASIS
CONSUMER APPROACH STRAND
ECONOMICALLY DEPRESSED AREAS STRAND
OCCUPATIONAL STRAND

Figure 1.

The instructional objectives directly related to teaching in each strand comprise the CORE of the MATCHE materials (see Appendix B).

Specifically, the Consumer Approach strand as defined in the Guidelines (1974) is : "designed to assist pre-service education students in learning the consumer aspects of various content areas. The Economically Depressed strand is designed to assist pre-service education students in developing and implementing programs for persons from economically depressed areas." The Occupational strand is designed to assist preservice students to meet the qualifications for teaching Home Economics Related Occupational programs.

These three strands have been color-coded red, white, and blue. For added organization in the MATCHE box, there is a general divider card for each strand stating the goals of the strand and listing the modules or contents. A second divider is provided for each subject area, giving the description and rationale for the specific area with a listing of developed modules.

Also included in the MATCHE box are selected FHA and FHA/HERO objectives. These became a part of the project to meet the competency "...teachers would be able to establish and sponsor youth organizations, such as the Future Homemakers of America." These are listed on separate cards and may be used in connection with selected modules or as the basis for a separate course.

To summarize, each strand consists of a CORE and five area packages (housing and home furnishings, foods and nutrition, textiles and clothing, human development and management), plus a set of FHA/HERO objectives.

Further, each area package includes several modules. The MATCHE chart (Appendix B) lists the modules developed to date for each strand. Some of the modules have an asterisk. This indicates an expanded module. The following chart outlines the content of the expanded and nonexpanded modules.

MODULES

*Expanded	Nonexpanded
Title	Title
Module objectives	Module objectives
Module overview	Module overview
Module pre/posttest	*****
Units	Units
Unit objectives	Unit objectives
Unit overview	Unit overview
Lessons	*****
Suggested resources	Suggested resources
Narrative summary	*****
Suggested activities	*****
Lesson progress check	*****
Unit progress test	*****
FHA emphasis objectives	FHA emphasis objectives

The format used in developing modules as outlined in the Guidelines (1974):

Title

Module Objectives -- The terminal performance objectives that concisely state what the student is expected to do at the completion of the module.

Module Overview -- The overview is to briefly explain the content and intent of the module. Many students may have the skills the module is designed to teach; they may be accustomed, however, to different terminology or to the use of the skills in a different context.

Module Pre/posttest -- The pretest determines whether the student needs the instruction contained in the module. If the student can demonstrate acceptable knowledge of the skills and concepts to be developed by the module, then only those prescribed by the instructor will be required. Students who successfully pass the module pretest are required to demonstrate completion of any required performance exercise in order to receive credit for completing the module. The test is evaluated by the instructor.

The module posttest may be comprised of the objective-based items covered in the pretest and/or additional items. All questions are keyed to units within the module for prescriptive remediation. The test is evaluated by the instructor.

Units

Unit Objectives -- Enabling performance objectives stating the skills and/or concepts the student needs to master in order to successfully achieve the module objectives.

Unit Overview -- The unit overview describes the rationale and purpose of the section in terms of the particular aspects of the module objective.

Lessons

Suggested Resources

Narrative Summary -- The narrative summary is a description of each lesson within the unit to familiarize the student with the basic content, the available resources, and the recommended activities.

Suggested Activities

Lesson Progress Check (where applicable) -- Lesson progress checks are self-tests, administered and checked by the student. These self-tests measure critical factors of the enabling objectives, resources, and activities, and assist the student in determining progress.

Unit Progress Test -- These tests measure the attainment of the enabling objectives for each unit, determining whether the student possesses the required skills which lead to mastery of the module objectives. These tests may be evaluated by the instructor, a student monitor, a graduate assistant, or the student.

FHA Emphasis Objectives

Some modules were not fully developed. These are listed as nonexpanded modules and do not include the pre/posttest, lessons, suggested activities, progress checks or progress test. These nonexpanded modules may be developed by the instructor or may be used as a learning activity by guiding students through the process of expanding a module.

In the Consumer Approach strand and the EDA strand there is an expanded module in each area package to serve as a guide or example. In the Occupational strand, all modules in the CORE are expanded.

With this organization and format it is easy to modify a module, to revise, delete or add objectives, to add units, to keep materials and resources current, and to delete or to add varied activities.

MATCHE is a very flexible curriculum. There is no set sequence. Student preference may be considered and the instructor's preferred teaching style may be used in planning the organization of a course.

However, persons working on the project felt that students should complete work in the modules of the CA strand before selecting modules in the EDA strand.

Two other characteristics of the MATCHE curriculum are of importance. First, it is individualized. There are many interpretations of individualization. These range from absolute freedom to individualization within the constraints of present curriculum. Individualization is not new. It has appeared and disappeared through the centuries. Each time it has reappeared there has been an added dimension to the process. Today there is a renewed sense of commitment and determination to again try individualized instruction as a means to facilitate the growth of each person.

There are certain aspects of individualization found in MATCHE -

- Individualization promotes the concept of personalization of instruction. James L. Olivero - (1973) defines a personalized program as one designed to accommodate each student depending upon his ability to accept responsibility and to develop academically.
- In the personalized program the instructor working with the student continually diagnoses level of achievement, selects follow-up activities based upon the diagnosis, and matches alternate prescriptions with the learning style of the student. Adjustments of goal and direction are the result of the input from the learner. The focus is not only on what the student is learning but also on how he is learning it and the conditions surrounding the how.
- In an individualized instructional program the student has

opportunities to make decisions such as in the selection of objectives, resources and activities. The learner also self-selects how to operate, which is determined by his learning style, interest and time.

- In an individualized instructional program the learner is involved in self-evaluation. Opprotunities for self-assessment are followed by cooperative assessment.
- There are many opportunities to incorporate student creativity.
- The instructor's role in an individualized program is that of a manager, a facilitator of the learning enviornment.

According to Madeline Hunter (1973):

"Successful teachers always have modified their behavior in light of the particular student. Usually this has been done on a subconscious level. Individualized instruction requires that teaching decisions be made consciously and reaction of the learner be monitored constantly to support or correct these decisions."

When a program is tailored to needs, the instruction is individualized regardless of whether the learner is working alone, in small groups, or in a large group. All these options are possible in MATCHE. MATCHE gives a process and product to assist in the implementation of individualization.

Another characteristic of MATCHE is that it is competency-based. Competencies are becoming a major basis for determining the effectiveness of the professional program. The American Home Economics Association, (1974) in the booklet entitled, Competency-Based Professional Education in Home Economics has listed selected competencies and criteria. This booklet can be used as an evaluative guide with the CORE material as decisions are made concerning the level of competence to be provided in the preservice education.

According to Stanley Elam, (in Crabtree & Hughes, 1974) a teacher education program is performance based if the following criteria are met:

- Competencies (knowledge, skills, behaviors) to be demonstrated by the student are derived from explicit conceptions of teacher roles, stated so as to make possible assessment of a student's behavior in relation to specific competencies, and made public in advance.
- Criteria to be employed in assessing competencies are based upon, and in harmony with, specified competencies, explicit in stating expected levels of mastery under specified conditions, and made public in advance.
- Assessment of the student's competency uses his performance as the primary source of evidence, takes into account evidence of the student's knowledge relevant to planning for, analyzing, interpreting, or evaluating situations or behavior, and strives for objectivity.
- The student's rate or progress through the program is determined by demonstrated competency rather than by time or course completion.
- The instructional program is intended to facilitate the development and evaluation of the student's achievement of competencies specified.

As you study the MATCHE materials this curriculum meets the above criteria. Note this example:

MODULE OBJECTIVE

Using appropriate references and resource people, the MATCHE student will be able to analyze job market opportunities for students interested in training for Home Economics-related occupations. The analysis will be based on an assessment of:

1) job market trends
2) personal interests and attitudes

3) educational qualifications
4) skill requirements
5) current salary expectations
6) opportunities for advancement
7) job satisfaction

MEASUREMENT

Given a list of appropriate references which outline job market trends in specific occupations, skill requirements, income, opportunities for advancement and job satisfaction; and a list of local resource people; you will be asked to make an assessment of the data provided, and based on that assessment determine job opportunities relevant to the needs and desires of a given case study subject.

I have had the opportunity to pilot and validate the Occupational CORE with a group of 26 students. Many students found it exciting. They appreciated the immediate feedback and the opportunity for new input. Students that were self-motivated were able to adjust to the self-pacing and enjoyed the independence of an individualized instructional program. Time for them was not an arbitrary constraint and therefore a few worked for extended periods of time within the semester block.

There is still much more experimentation and reviewing of strategies to use in an individualized program, as well as revising and adding to this one segment of curriculum. To provide an understanding of MATCHE so that this experimenting and revising can be expanded is one of the purposes of this workshop.

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WHY MATCHE NOW?

by Dr. Alberta Dobry

The assignment given to me has been to answer the question: Why MATCHE now? As I see it, the threefold answer very simply stated is that we have and need MATCHE now (1) because of the changing nature of our society, (2) because of the changing nature of our students, and in response to these factors, (3) because of the changing nature of education.

Changing Nature of Society

The MATCHE idea and materials couldn't have been developed at a more opportune time. The need for such materials is now. If we trace the changing nature of society, the need for a futuristic view toward teacher preparation may be clearly illustrated.

As noted by such people as Florence Kluckhoun, Fred Strodtbeck, and Alvin Toffler, each society has its own attitude toward a time orientation of past, present or future. A society's time orientation, which is formed in response to the rate of change, is a strong determinant of social behavior and is clearly reflected in the way the society prepares its young for adulthood.

In an unchanging society, the past was carried into the present and repeated in the future. So, the most sensible method of preparing the learner was to provide him or her with the skills of the past--for these were precisely the skills that would be needed in the future. Thus parents handed knowledge, skills and values directly on to their children. Knowledge was transmitted through the family, apprenticeships and religious institutions rather than through specialists in schools.

The key to the success of that system rested with its faith in the past. That faith was shattered with the advent of the Industrial Revolution.

Neither the value system, which rested on the past, nor the previous educational system fulfilled the needs of the mechanical age. The most powerful change brought on by industrialization was a shift in time orientation--from the past to the present.

The problem of producing the kind of adults needed for an industrial society was extremely complex. There was a need to pre-adapt children for a new world--one filled with repetitive indoor work, noise, machines, crowded conditions--all of which were regulated by the factory whistle and the clock. The solution which finally emerged was mass education. The entire administrative hierarchy of education modeled itself after the industrial bureaucratic system. Children were well conditioned for the new industrial society. They marched from one structured discipline to another at the sound of a bell and sat in assigned places.

Right up until the late sixties this type of educational system helped to standardize individuals. Technology also helped to standardize life for us. There was even a certain degree of standardization in our food, clothing and shelter. Remember that song that was popular some time back that talked about houses made of ticky tacky placed all in a row? And, remember back at times past when you were very conscious and careful of wearing the right garment for the occasion? That was all a part of the very standardized life we led.

Such standardization was made possible through one of the advantages of technology which is mass production. Therefore, not only were standardized items readily available but they were promoted. In fact, advertisements served as a giant megaphone extended through popular household magazines such as Life, Look, and Saturday Evening Post. These magazines died. Why? There would certainly be a number of answers to such a question, but one that stands out is that those magazines were highly standardized. People are becoming more selective and less standardized. Magazines such as Life and Look gave way to nonstandardized reading material. Have you checked the local newstand lately? You will find there are magazines for all kinds of groups. There are special magazines for gardeners, pilots, retired people, apartment dwellers, and so on. All are very nonstandardized.

Thus, instead of a mass culture, we are quickly becoming a destandardized or individualistic culture. The pride that was taken by citizens of our country in being a melting pot has been replaced by the pride taken in one's original heritage.

Standardizing was produced by the industrial society to serve the needs of the industrial society. During the late sixties and early seventies standardizing came to a halt. In its place came the arrival of diversity, And, not just in our society, but in societies over the world.

A shift in time orientation from the present to the future has created a need for diversity. In fact, survival of most systems and especially our educational system may be dependent upon diversity. The most highly criticized features of education today--the regimentation, the rigid systems of grouping, of grading, the lack of individualization, the authoritarian teacher, and so on--are those things which led to standardization in an age focused on the present. As just pointed out, that age is gone or at the very least fading fast.

The Changing Nature of Our Students

Such items as the MATCHE materials can provide diversity. With these materials there is an opportunity for individualization or, if you will, personalization in education. A personalized approach in education is critical because our learners are no longer as standardized as they once were. Let's consider the somewhat traditional and maybe even stereotyped profile of our majors.

There once was a time when the preservice home economics teacher could have been described as a white, middle-class, single, female ranging in age from 17 to 21 or occasionally 22 years of age. The first descriptor that failed to hold true in an increasing number of cases was that of being single. We have had married students on the scene for several decades now and have come to accept them as a matter of course.

Use of the term single doesn't even work anymore. This is somewhat of an aside note but there was a time when we could use the term single and everyone knew what it meant. The term was highly standardized. Now, when someone identifies themselves as single, we wonder: Does that mean divorced, separated, widowed or never married? Even the expansion of the concept single is a lowly example of some of the change that has taken place in our thinking. We no longer tend to think in the standardized sense we used to. We tend to think in more destandardized terms.

Continuing our analysis of the description of a preservice home economics teacher, the white and middle-class descriptors seem to go hand in hand. Exceptions to these descriptors became somewhat evident in the mid-sixties with the surge of the equal opportunity movement.

Following closely on the heels of that change was the expanded age range of students that started showing up full-time in our undergraduate courses. The adjustment to this change was easy. We were used to diverse age ranges in graduate level courses so the change at the undergraduate level was fairly simple to accept. In fact, it crept up on us before we were completely aware of it. Also noted is that everyone seems to visually appear so young these days that sometimes we aren't even aware of the age differences until we examine the data forms we have on our students.

The Women's Liberation Movement wasn't the only social force bringing an increased age range of students to our classes. The economic force was, and is, a big factor. Further, the economic need is not just due to the higher cost of living, but due to a change in living patterns as well. Many of our students of various ages are single parents. They are the sole breadwinner for the family. This is an increasing trend; particularly in urban areas.

Right now one out of every four urban children is from a family with a single parent. That figure is predicted to rise to one out of every three children in the near future. If our students include the single parents of these children, are we ready for them? Do we accommodate them in our programs? Because many of them come from a variety of backgrounds, have held and do hold jobs while attending school, they have useful and different experiences behind them. Further, they have a very serious need to get into the full-time job market as quickly as possible. How patient are they going to be with repetitive or irrelevant curriculum requirements? Think about it.

The increased age range of our students clearly indicates that educational needs occur throughout various points in a lifetime. What do we do to facilitate easy exit and entry into our programs at different points in time? Wouldn't such things as the implementation of MATCHE materials be a step in the right direction to meet this need?

Finally we are into the mid-seventies and the last descriptor of our preservice home economics teacher--that of being female--has also lost its validity for our home economics education majors. Those of us in education applauded when our colleagues in the subject matter areas were experiencing an increasing number of male students. We agreed that what home economics really needed was some men in the field. And, for decades we have promoted the idea of having both males and females enrolled in our secondary programs. But a strange phenomenon seems to take place within us when a male student claims home economics education as his major. I'm not just referring to the occupational aspect here. I mean the consumer and homemaking program area as well. Do we encourage male majors? Or, are we quick to point out to them that the traditional attitude of most school systems will hamper their chances of becoming employed?

If we lean in the direction of the latter, do we do it under the label of honesty? If so, isn't such honesty based on a time orientation other than the future? If we profess that we are preparing students for the future, isn't there some sort of conflict going on here?

One may argue that things won't change fast enough for our male majors. That argument may be a miscalculation. Change has accelerated rapidly. Let's review the rate at which some changes have taken place.

Let's look at some concrete measurable changes. For example, the first English patent for a typewriter was issued in the year 1714. However, it took a century and a half before typewriters became commercially available.

As further illustration, Robert B. Young studied the span of time between the commercial appearance of new electrical appliances and the time the industry manufacturing it reached its peak production of the item. He found that appliances such as the vacuum cleaner, the electric range, and the refrigerator, which were introduced in the United States before 1920, took an average time span between introduction and peak production of 34 years. For items such as the electric fry pan, washer-dryer combination, and television, which appeared during the 1939-1959 period, the span between introduction and peak production of each item was an average of eight years. This is a lag shrinkage of more than 76 percent.

Consider for yourself such an item as the hand electronic calculator. When did you first hear about it? How easily accessible is it now? Only a span of a few years between introduction and peak production took place on that item. Thus, we might exercise some caution on hasty predictions concerning the rate of change.

One might argue that rapidity of change might be true for products but not so for attitudes. I wonder. Wouldn't it take an attitudinal change toward the new products to allow industry to successfully go into peak production on the items? Wouldn't our measure of change on the concrete items serve as an indicator of attitudinal change?

We might examine some changes that could be clearly categorized as attitudes as well. Take for example the attitude toward divorced women in general. It took decades to come up with an accepting attitude toward divorcees. Or, how about the change in attitude toward premarital pregnancy? Do we go into instant shock and continue to automatically think that immediate marriage is necessary? No, we ask things like: Is she going to keep the baby, have an abortion, or what? Our response isn't the same as it once was, and it certainly isn't standardized anymore. It took decades, but we even acquired so accepting an attitude that we encourage pregnant unmarried students to complete their education. Such encouragement was unheard of 15 years ago.

More recently, for example, let's consider the idea or attitude toward couples living together without benefit of a marriage license. This alternate living style has been selected by a sizeable number of people within the past decade. In a general sense, what has happened to your own attitude toward the idea? About five years ago when someone told us about such a couple didn't we tend to respond with something like: "John and Mary -- You've got to be kidding!" Now, five years later, what's our response to the idea? Isn't it something like: "Oh, really?" Thus, attitudes do change, and more rapidly than they used to. Therefore, in terms of attitudinal changes, male home economics teachers may be accepted into secondary school situations sooner than one would guess.

All in all, the conclusion concerning the traditional definition of our majors is that our instructional target group of learners is no longer as clearly definable as it once was. They no longer come to us in a uniform standardized package. And, because they are not only different individually, but collectively as well, so too must our curriculum be different. The curriculum must be more fluid to allow for personalization and individual differences.

By the way, the connotation of individual differences has even undergone change. Before, we did a good job of focusing in on individual differences in learning styles, but the differences that exist now are much more complex, as the preceding discussion attempted to point out. There are differences in types and varieties of experiences, backgrounds, ages, sex, personal life-styles and attitudes. And, most of all there is a difference in time orientation.

Changing Nature of Education

There is a distinct need to move to a more living and fluid curriculum. But like all fluids, it must be contained in some way to be controlled or managed. Thus, there must be some structure to a moving or flowing curriculum. This is an extremely large challenge. There has been an attempt to meet this challenge on the part of educators as noted by the surge of the alternative schools movement which marked the beginning of the seventies.

This movement has been paralleled by the development of alternative teacher training programs. Experimentation with alternative plans for the education of both students and teachers has gradually grown out of the fact that our population has become more diverse yet preponderantly urban. The steady progression of urbanization in our society has increased the complexity of the problem of meeting the diverse needs and interests of all participants in the majority of our educational settings. This does not mean that rural sectors no longer exist. But, it does raise a concern for the question of relevance in home economics teacher education programs.

In looking specifically at home economics, we find that at its inception home economics was closely allied with agriculture and its rural orientation. Continued allegiance to this orientation has caused increasing concern among leaders in the field. As pointed out by Earl McGrath (1968):

> Teachers and administrators within the field, as well as individuals outside, share a concern that the content and philosophy of home economics have not adequately adjusted to population shifts from rural to urban environments....

The needs and interests of students vary in different schools and communities. In addition, the organizational structure of the school, the number of outside influences on curriculum, and the resources and facilities that a teacher has at her disposal also vary with the size and orientation of different schools and communities. Thus, the coordination of, the preparation for, and the placement of a teacher into a particular situation will have a great deal to do with that teacher's success in implementing a relevant curriculum. As Marvin Ack (1970) pointed out, the way in which a person behaves in any given situation is the product of that situation and his past experiences. If one considers that teacher preparation is part of a teacher's past experience, then special attention to the nature of that experience is warranted for the promotion of optimum professional behavior. As emphasized by Ack:

> The more complex the circumstances and the more average the person, the more we can expect that his response will be dictated, in large measure, by his past rather than what is really happening now. Therefore, we must be concerned with what kind of model we present as an individual or as an institution, and what kind of experiences we expose him to.

The abundance of literature in the field of teacher education provides ample evidence that teacher effectiveness and teacher behavior have been a vital concern for some time. Unfortunately, much of the literature consists of opinions unsupported by research data. Further, the existing research, focused on analyzing the success of teacher education programs, has raised more questions than it has answered. The current status of the concern has been described by B. Othanel Smith (1971) when he stated that:

> It is barely four decades since the first empirical studies of teacher education were made.... Since that time a large number of such studies have been made. How many is anyone's guess, but enough to fill a handbook of research on teaching and to justify a revision of it. Yet we keep asking ourselves how much dependable knowledge do we have with which to build more effective programs of teacher education? Some critics, viewing the mountain of data interpreted by statistical techniques--standard deviations, coefficients of correlation, regression equations, and what have you--exclaim that there is less here than meets the eye.

But, I hasten to add, that doesn't mean that we should put our present programs into a hold pattern.

This general evaluation of the status of teacher education is supported by specific concerns such as the one expressed by Foster (1968). He pointed out that according to the latest reporting we have neither been able to educate the disadvantaged urban Negro child nor have we been able to train and retrain teachers for inner-city schools. Additional concerns have been expressed throughout the literature for meeting the needs of the culturally disadvantaged and the educationally disadvantaged in both rural and urban areas. McGrath (1968) elaborated on this point when he stated:

> We ought to consider the relationship between home economics and the social revolution occurring in our society. No documentation is needed to justify the statement that the causes of the present turbulent disturbances lie in the conditions of life among the underprivileged, the minority groups, the undereducated, the inadequately housed and fed, and to a large extent those who live in the center city....The purpose... here is to state unequivocally and clearly that... in the improvement of education, housing, health, welfare, the family--in all these areas of living and many others as well--the home economists have an obvious and, in some respects, a unique contribution to make.

The basic concern in teacher education revolves around a reflection of relevance in the curriculum for today's students. That curriculum has been criticized as being somewhat pedantic and suggests a need for some investigation concerning the process of curriculum planning.

Several proposals have been set forth for change in home economics preservice teacher education programs. Alberta Hill (1970) proposed that the selection of preservice experiences could be based on the personal data of the prospective teacher. Each prospective teacher would be programmed into practical professional experiences appropriate for his or her individual background, abilities, and aspirations. In contrast, Marion Minot (1970) has recommended that future home economics teachers be given preservice options of an in-depth concentration of work in one problem area. This approach was envisioned as a way to release the field from the trap of the status quo and free it for making changes toward the types of programs which would fulfill projected needs.

In discussing teacher education programs Elizabeth Ray (1970) suggested the need for a dynamic approach:

> Differentiation is needed; exploration and experimentation are to be valued; a sense of openness to change is essential. Yet what the field needs most is differences which make a difference. Needed are qualitative differences in the teaching that goes on in home economics classrooms. Needed is teaching that adds up to qualitative differences in the lives of children taught in those classrooms.

Looking at another perspective, Mary Lee Hurt (1969) attested that changes in home economics programs in secondary schools are dependent upon changes in preservice teacher education programs and expansion of in-service help for teachers. Focusing on such a goal, Hill (1970) set forth a strong charge to home economics teacher educators when she said:

> Assuming we do have a body of content and can define teaching behavior, then it seems reasonable to expect us to teach teachers to perform successfully, not to get through courses or earn credits for renewal of teaching certificates.

Reflecting on the problem of program change, we note that it tends to be frustrating. Some aspects of this problem have been expressed by Minot (1970) when she asked:

> In making a change such as this where do we start? Do we start with college classes? The program assumes that college courses must be focused upon the problems of man and his environment and that faculty

> teach from a multidisciplined point of view. Do we start with high school programs? It is doubtful that a restructuring of courses in the high school will evolve without teachers who have appropriate background for the new tasks created by reorganization. Do we start with certification requirements? Most states still require X number of hours in each area of home economics. Or, do we start with teacher preparation? A systematically planned change on all fronts would have the greatest inpact. It is the responsibility of educators in home economics to take the necessary leadership and initiate such a change.

It seems that there is no doubt that responsibility for initiating widespread program change lies with teacher preparation institutions. Further, in order to plan systematic changes in teacher education, identification of the types of school situations in the future with which teachers will be faced is an essential prerequisite to considerations for effective changes.

Teacher education must be viewed and approached as an ongoing process which is personalized or individualized to different needs in preparation for the instructional role. Acknowledged is the fact that this philosophy has long been espoused in teacher education, but the contemporary scene intensifies the necessity to transfer the philosophy into practice. Continuous and rapid societal change with concurrent changes in demands placed upon teachers in addition to expanding variations in the instructional settings in which teachers may find themselves point to the conclusion that to improve teachers' impact on learning there have to be changes in teacher performance.

All of these forces emphasize the need for implementing a fluid, living, individualized approach to teacher education. Both in-service and preservice teachers need a continuing means of acquiring those competencies that they individually find necessary to fulfill their changing instructional roles. Due to such restraints as time, money and instructional resources, the ideal—a totally individualized instructional system—may never be reached. Even if a teacher had only one student, that teacher could not provide totally individualized instruction in its strictest sense because of the inability to identify all of the learner's individual needs and to make the appropriate provisions for meeting those needs. Nevertheless, individualized instruction does serve as a desirable goal to work toward.

There have been efforts toward this goal during the last two decades. Many of the innovations have already undergone evaluation and seem to be educationally sound. One of the earliest attempts to meet individual needs was programmed instruction. Essentially the early efforts were pencil-and-paper programs designed to teach small segments of subject matter. The research conducted in the mid to late fifties by such people as Skinner with the linear technique, and Crowder with the branching technique led to the identification of several teaching principles which became characteristic of programmed instruction. These were (1) small steps, (2) active student involvement, (3) immediate feedback, and (4) self-pacing.

As we moved into the sixties, a new development was underway when Postlethwait began to supplement the instruction in his freshman botany course at Purdue University by using audio-taped presentations. By the end of the decade he had developed an audio-tutorial approach which was structured around a self-instructional learning carrel. His system incorporated objectives, audio-tape, printed study guides, visual aids, and actual biological materials. In addition, there were teaching assistants to help students in grasping complex concepts.

In 1968 Postlethwait proposed the concept of a small unit of subject matter which could be treated coherently as an individual topic and could be conveniently integrated into a program of study. These instructional units or small courses came to be known as mini-courses. In fact, a conventional course could be constructed from a series of mini-courses. The length and content of the mini-courses varied depending on the objectives set for them. Since 1969, when mini-courses were introduced to Purdue University, the idea has spread to other institutions of higher learning and to elementary and secondary institutions as well.

Thus educational change can be traced through the emergence of programmed instruction in the fifties, the audio-tutorial approach in the sixties, and the design, development and utilization of the more complex mini-courses in the seventies. Fairly rapid developmental change for education, wouldn't you agree?

Recent years have witnessed other similar small units of instruction usually referred to as modules. A few examples include: the "concept-o-pac," "instruc-o-pac," "unipak," "learning activity packages, or LAP" as they are popularly called. There are also individualized learning packages, HELPs and now MATCHE.

The primary advantage of instructional modules is that they provide the opportunity for each student to learn selected subject matter in his or her unique way. Modules such as the MATCHE materials can help to restructure teacher education in home economics. The restructuring of teacher education is what it is going to take to meet the expectations of our increasingly complex society and our nonstandardized student body.

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HOW MATCHE CAN BE USED

by Dr. Alberta Dobry

Before we look at various alternatives for implementing MATCHE materials in our programs, let's briefly review what it is we are thinking about implementing. The generic term which is most frequently attached to individual units of instruction such as the MATCHE materials is module. To clarify communication most terms come with definitions and the term module is no exception.

James Russell (1974) broadly defined a module as an instructional package dealing with a single conceptual unit of subject matter. The Goldschmids were somewhat more specific in their definition. They defined a module as a self-contained, independent unit of a planned series of learning activities designed to help the student accomplish certain well-defined objectives.

Whether one chooses the broad definition, the specific definition or something in between depends on the particular program perspective. However, in all cases modular instruction is an attempt to individualize learning by enabling the learner to master one unit of content before moving to another.

Modules allow for differences in levels of achievement, rate of learning and learning goals in various ways. Frequently, the multimedia learning experiences are presented in a self-instructional format. The student masters the material at his or her own rate. Many module packages may include materials which are portable. Thus, the learner may have the opportunity to choose the library, a study carrel, or home as the learning environment. The length of modules may vary from a few minutes to several hours of learning time depending upon the nature of the learner, the objectives, and the material. Modules may be used independently, or they may be combined into a sequential series or into a random set of conceptual units.

One of the big advantages of modules is that they are highly conducive to revision, reorganization, deletion and so on—so necessary with new knowledge coming in as fast as it does. Another advantage of modules is that they lend themselves to the utilization of a wide variety of media which optimizes instruction on a given topic. Some examples include the following:

A. PRINTED MATERIAL

Reading textbooks, articles, and abstracts

Examining charts, diagrams, drawings, and photographs

B. PROJECTED MEDIA

Viewing films, filmloops, slides, videotapes, overhead transparencies, and microfilm

C. AUDIO INPUTS

Listening to records and audiotapes

Attending speeches and hearings

D. REAL OBJECTS

Handling real materials, objects, and models

Studying demonstration materials and specimens

E. HUMAN INTERACTION

Discussing subject matter with other students, teachers, or resource persons

D and E. REAL OBJECTS AND HUMAN INTERACTION

Conducting actual or simulated experiments, demonstrations, surveys, and interviews

Modules also have a number of positive features which maximize individual fulfillment. Experiments with modules have shown them to be highly adaptable to a wide range of subject matter, numerous learning strategies and various learner needs:

Modules are individualized. Modules may be either highly individualized or they may be used to provide uniform instruction for a large number of students on an individual basis. Some students may pretest out of certain modules while others work their way through a given set. There may be alternative modules which deal with different content OR different approaches to the same content may be provided. With the latter, the student may choose the alternative suited to him or her. If you have students from different majors in your classes, the use of alternative modules for the different majors could help meet the various needs.

Modules are flexible. There is flexibility for both the learner and the instructor. Arrangement and sequencing may be varied depending on the nature of the variables involved. In some cases students may have the option of selecting a given number in a set or series of modules. The use of pretests will help determine what is needed and what is not.

Modules provide freedom. The learner is free to master the material at his or her own pace without being forced to move to new material prematurely. There is one caution, however, with learners low in self-discipline. Both the teacher and the module need to provide an optimum learning environment to inspire students to maintain their involvement in the learning process. With the use of modules, the burden of learning is squarely placed on the learner. Some learners haven't learned to handle such responsibility.

Modules include active participation. This follows the principle that students learn by doing. To keep students actively involved is a primary focus of modules. Modules allow the teacher to become more of a resource to the learner. With the use of modules the teacher functions in the more important activities of teaching--inspiration, encouragement, motivation, orientation, and personal contact. The teacher serves as resource person, diagnostician, and prescriber in terms of module usage.

Modules provide student interaction. Student-to-student interaction can be part of the module design. In fact, students should be encouraged to work together on complex learning activities. Modules may also be open-ended. This allows for the student to set his or her own direction in terms of the topic.

The specific characteristics of modules closely parallel the preceding features. Not all modules contain all of the characteristics, but generally most include the following:

1. Self-contained, self-instructional units
2. Provision for individual differences
3. Well-defined objectives
4. Structure and sequence of knowledge
5. Use of a variety of media
6. Active learner participation
7. Immediate feedback to responses
8. Mastery assessment strategy

One could use different terms or further elaborate on the module characteristics, but those above essentially include the basic components.

The flexibility of modules allows one to use them in a number of alternative ways or to select from among the alternatives and use them in one way. A few of the alternative uses include:

1. Incorporate the modules into the present course structure. (This

choice allows for the quickest adoption because there is seldom a need to go through the curriculum approval system with this choice.)

a. One could incorporate modules as a supplement to the courses. If a class ordinarily meets three times per week, then maybe an adjustment could be made to meet twice a week with the class as a group. The remaining class time for the week could be devoted to individual students working on MATCHE modules. Some situations might find it more suitable for two to three weeks out of the term to be devoted to selected modules with the rest of the time operating on a "business as usual" basis. Another possibility is that the objectives might be such that course time to MATCHE materials would be sporadic. Any combination is possible.

b. Another approach would be to use the modules as a major portion of a course and supplement the modules with regular class activities.

2. If the objectives match, one could substitute various MATCHE strands or parts of any one or a combination of strands for existing courses. (Like the preceding choice, there should be no need for going through curriculum channels in most universities with established course numbers and objectives already approved.)

3. Another alternative would be to revamp the program and create new or revised courses using the MATCHE modules.

a. One could think in terms of operationalizing the modules within the regular time frame.

b. Devising a series of mini-courses is another option. The mini-course approach could be incorporated in much the same way that secondary schools implement modular scheduling. Most university class time schedules allow for such.

c. The block plan approach is another consideration. If a program is already on a block plan of concentrated professional development courses, then the modules could be easily utilized within the block framework.

Before deciding on any one alternate plan the first step, of course, is to reexamine the teacher preparation program goals in conjunction with the program activities. Then, compare the MATCHE objectives with yours to arrive at your curriculum decisions.

Once the basic curriculum decisions have been made, then there are some very practical aspects to take into consideration when determining how to implement the system decided upon. Some topical considerations for general systems planning in teacher education include the following:

1. System Constraints
    - Time limitations (quarters, semesters, four-year programs)
    - Facilities (on campus, in the community)
    - Relationship to other systems (programs, courses, other majors, minors, etc.)
    - Graduation requirements
    - State certification requirements
2. System Resources
    - Materials (software)
    - Hardware (equipment)
    - Physical facilities
    - Human resources
    - Program budget
3. System Management
    - Scheduling
    - Organization of resources (space, equipment, etc.)
    - Coordinating efforts between staff and students

Recruiting technical assistants and support personnel
Provisions for counseling/conferences
Materials development, revision and reproduction
Research on effectiveness

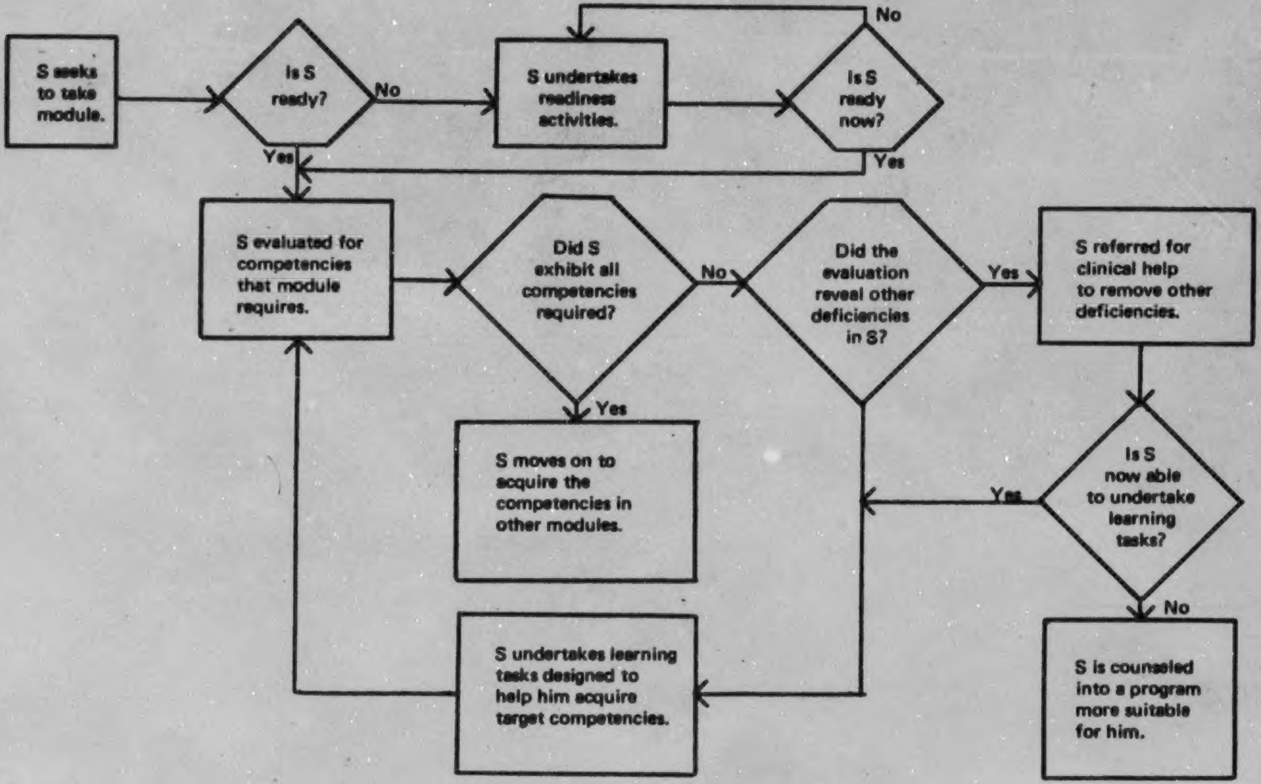
When teacher education is viewed as a system, program management can be viewed as a subsystem. Management's concern is the well-being of the entire system. As with all systems, it too has inputs and outputs. The inputs are organizational problems. One such problem might be that of transfer students. Other problems might be determination of credit allocation, use of pass/fail versus regular grading procedures, and requests for incompletes or time extensions. The outputs are the organizational solutions which are best handled by establishing decision rules for particular situations or questions that come up and through the establishment of policies for each class of problems.

The primary managerial function would be to see that everything is provided so that the learner may move through the learning process. One way to set up this process has been illustrated on the flow chart entitled "Schema for Individualized Learning Process." (See Figure 1.)

Using a process similar to that illustrated in the flowchart the teacher becomes a manager of learning specializing in designing, implementing, and evaluating the program. With this focus the emphasis is on program outcomes, preservice teacher behaviors, and operationalizing procedures and techniques.

Depending upon the way you plan to implement the MATCHE modules in your program, you may find a need for additional personnel. No doubt the budget isn't going to be increased to include added faculty on your staff. A solution might be to use students in instructional roles.

SCHEMA FOR INDIVIDUALIZED LEARNING PROCESSES[1]


S seeks to take module.
Is S ready?
No
Yes
S undertakes readiness activities.
Is S ready now?
No
Yes
S evaluated for competencies that module requires.
Did S exhibit all competencies required?
No
Yes
Did the evaluation reveal other deficiencies in S?
Yes
S referred for clinical help to remove other deficiencies.
Is S now able to undertake learning tasks?
Yes
No
S moves on to acquire the competencies in other modules.
S undertakes learning tasks designed to help him acquire target competencies.
S is counseled into a program more suitable for him.

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[1] Dan W. Anderson, et al. Competency Based Teacher Education: 1. Berkeley, Calif.: McCutchan Publishing Corporation, 1973. p. 93.

Figure 1.

If you need a course assistant and have a graduate program, a graduate assistant would be a help. If proctors or teacher aides are needed, then why not use undergraduates who have been through the modules? Use a credit option rather than salary. Perhaps there is an established avenue to facilitate this such as through an independent study or special topics course. This provides a very good learning experience for the students and keeps your budget free since this way the students would receive credits rather than salary. If an undergraduate teacher aide program is established, then there might be a need to set up an application system to control the number of applicants and possibly the qualifications of applicants.

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DRAFTING A MODEL IN THE MANAGEMENT AREA

by Dr. Alberta Dobry

Modules of instructional packages are developed to facilitate the attainment of the objectives of the package by specified populations. The instructional approach may be conceptualized as linear programming in the Skinnerian sense, or as sequencing, as described by Bruner. With these approaches terminal skills or objectives are stated, then a series of subskills are sequenced to facilitate attainment of the terminal objectives or skills.

The first problem with module development is deciding where to begin. To clearly establish direction, one begins with the statement of well-described objectives. Once the objectives are determined, one has to decide what concepts are involved in the attainment of the objectives. Following that step the concepts must be organized. This is where models enter into the process.

Models help to organize concept development. Various dimensions of concept formation include development along several continua such as the following:

1. specific to general
2. concrete to abstract
3. vague to clear
4. simple to complex
5. limited applicability (for self only) to extended applicability (for content generality)

The nature of the concept, its context within a given discipline, and the entry level of the learner influence where one begins at any one point along the concept continua. Figure on next page.

When we know what the important concepts in a field are that aim toward objective attainment, and when we can identify their relation to each other, then we are in a position to plan curriculum and defend it. One way to identify and organize the development of conceptual knowledge is through the utilization of a model such as the Logic Tree developed by Hickey and Newton (1967).

The Logic Tree model (Figure 1) is structured to illustrate the relationship of the subconcepts or conceptual elements of the major concepts. A simplified example is shown through the diagram concerning the topical structure leading to the concept food from the subconcept orange.

LOGIC TREE

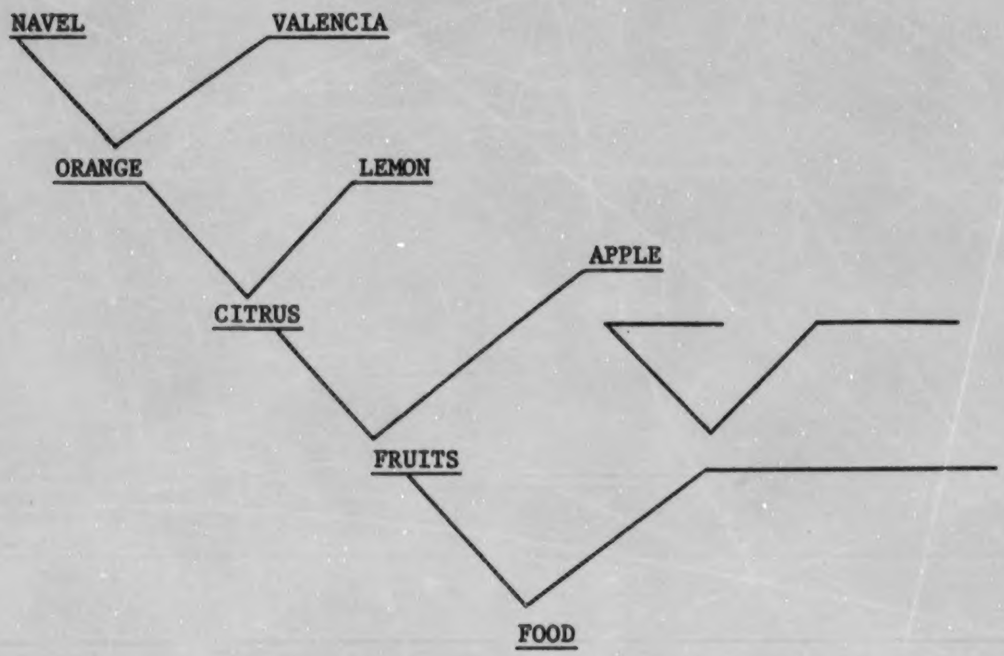

Figure 1.

When the dimensional place is superimposed on the logic tree, the progression from the concept orange to that of food flows from the elemental to the complex direction. Progress in this direction implements an inductive approach to concept formation. The deductive strategy is achieved by approaching concept formation in the reverse direction.

Models such as the Logic Tree frequently serve as a framework in developing conceptual outlines. An example of a conceptual outline has been developed in the area of management:

EXAMPLE OF A CONCEPTUAL OUTLINE OF MANAGEMENT CONCEPTS INVOLVED IN DEVELOPING A GIVEN STUDENT COMPETENCY

MATCHE OBJECTIVES directed toward reaching the competency below include:

#49. Given all necessary information, the MATCHE student will be able to outline his/her own personal management program and evaluate the program in terms of meeting his/her personal needs or situation.

#50. Given several families and their allocation of resources, the MATCHE student will be able to devise at least one method whereby the families are able to recognize the relationship between the use of their resources and their goals.

COMPETENCY: Ability to analyze a family situation and make decisions concerning courses of action and use of resources appropriate to solving that family's managerial problems.

Conceptual Outline

1. Environmental factors and forces
   a. Space
   b. Time
   c. Culture

2. Value orientations

3. Value hierarchies

4. Goals
   a. Short term
   b. Intermediate
   c. Long range

5. Conflict situations
   a. Between values

- b. Between values and goals
- c. Between goals and goal attainment

6. Decision situations
    - a. Economic
    - b. Technical
    - c. Social

7. Decision maker(s)
    - a. Role expectations
    - b. Power
    - c. Informational inputs
    - d. Perceptions
    - e. Communication
        - (1) Verbal
        - (2) Nonverbal

8. Seeking alternatives

9. Standards

10. Decision making
    - a. Types
        - (1) Rational
        - (2) Irrational
        - (3) Nonrational
    - b. Styles
        - (1) Preference ordering
        - (2) Objective elimination
        - (3) Immediate closure
    - c. Rules
        - (1) Mini-max
        - (2) Maxi-max
        - (3) Efficiency
        - (4) Heuristic
    - d. Patterns
        - (1) Central-satellite
        - (2) Chain

11. Resources
    - a. Material
    - b. Human

12. Decision implementation
    - a. Planning
    - b. Organizing
    - c. Controlling
    - d. Checking and supervision
        - (1) Directing
        - (2) Guiding

Note that the concepts included in the outline serve as only an example.

Other variations in such an outline are certainly possible in conceptual development aimed at the behaviors specified in the two objectives listed on the outline. Instructional objectives are ultimately aimed at professional competencies which may or may not be explicitly stated for a program.

The development of professional competencies is highly complex. Since directionality is an essential component of cybernetic systems, the use of cybernetic models (Black and Broderick, 1974-Appendix C) is one way to assist the module developer in sequencing complex learning.

The presentation of cybernetic models appears in flowchart form. The symbols most frequently used in flowcharts are shown in Figure 2.

FLOWCHART SYMBOLS

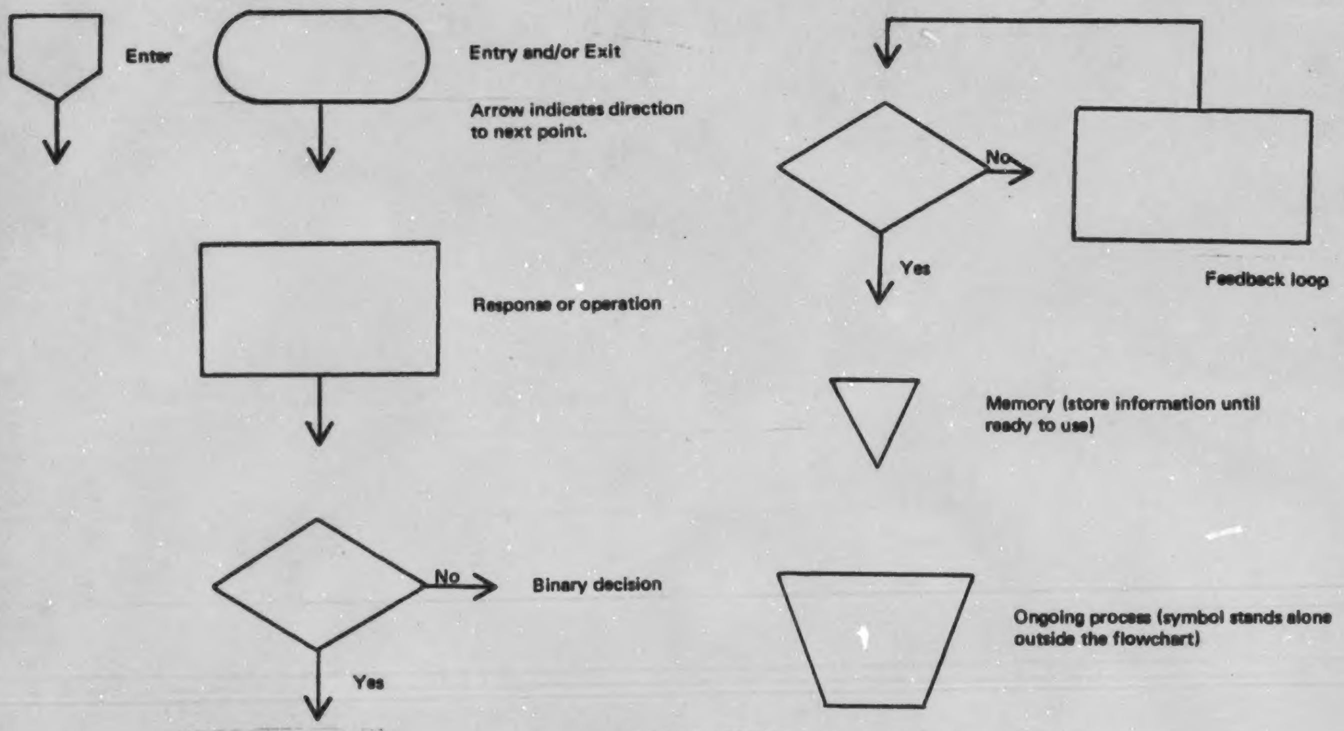
Enter
Entry and/or Exit
Arrow indicates direction to next point.
Response or operation
No
Binary decision
Yes
No
Yes
Feedback loop
Memory (store information until ready to use)
Ongoing process (symbol stands alone outside the flowchart)

Figure 2.

Cybernetic models become an attractive choice in professional education since system behaviors are the focus of such models. The classes of elements required in cybernetic models include:

1. Sets of operations - system behaviors.
2. Status indicators - describe the conditions or status of environmental features.
3. Criterion indicators - identify the status indicators or serve as indicators of system standards or goals.

The latter two elements above may appear on a flowchart as either operations or variables (binary decisions) depending on the situation involved.

There are three basic cybernetic models. Each model includes all three classes of elements.

Cybernetic-linear model. This model serves to sequence various operations or behaviors. The distinguishing feature of this model is that there is no attempt to correct, alter, or modify the status indicators. Operations are simply chosen in light of indicators found in the process. Thus, there are no feedback loops in flowcharts of cybernetic-linear models.

Cybernetic-reflexive model. This model is used when appropriate operations toward a particular goal are known. Feedback for correction is charted in the reflexive model because the operations are directed at modifying status indicators in the direction of the criterion which serves as a standard or goal indicator.

Cybernetic-morphogenic model. This is an adaptive model which includes a process for generating new system responses. This model is used for flowcharting situations where modes of behavior are discovered within the process itself. In other words, this system provides for flowcharting functions which cannot be universally predicted in advance for given situations.

A cybernetic model in the area of management has been developed to serve as an example (see Appendix D). The model illustrated is a reflexive model. Note that the management concepts on the "Conceptual Outline" previously presented are the same ones which have been flowcharted in the reflexive model example. This was done to illustrate two ways of approaching the same material. One could also view this as a step-wise process taken in moving from one model to another in the beginning phases of module development.

Some of the various elements on the flowchart in the area of management could be developed as individual modules. For example, the second operation in the first stage of the model which is "identify the family's value orientation" would indicate a need for development of a module on values. Since we know that goals stem from values, one would sequence a series of modules so that a module on values would serve as a prerequisite for a module on goals. Since the management model example given is intended to flowchart target behaviors for an entire course of study, one would expect a sequential series of modules to be developed to ultimately reach the competency specified in the illustration.

Once the modules to be used in a course or program have been developed, then the final step is to arrive at a system for implementing them. The models described in Anderson, (1973) could serve as functional formats for organizing an individualized instructional design for teacher education programs.

In conclusion, there are a variety of directions in which instructors may go in module development and implementation. Only a few selected options have been considered in this discussion of models. Each person is encouraged to try the various approaches; then decide which model or models are most comfortable and most functional for individual needs.

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BUILDING MODELS: INTRODUCTION

by Ann Burrows

For this portion of the workshop the participants broke into groups by subject matter area to participate in building models under the direction of Alberta Dobry. The purpose of the session was to acquaint everyone with the process involved. The sequence of steps included: 1) selection of a module or unit objective, 2) rewriting of that objective if needed, 3) listing concepts involved to attain the objective, 4) using those concepts to build a model illustrating the process a student would go through to achieve the objective. Building of models is one means of organizing the curriculum materials for instructional purposes or insuring that all concepts in a particular objective are included for a specific group of students by a specific instructor.

After the small groups worked, the models were shared with the entire group. A sampling of those models follows. For some, an explanation was available. Others have no explanation because the tapes were inaudible. The reader is reminded that these were constructed in a short amount of time, and do not represent the full range of possibilities open in the building of models. The wide variety of types of models constructed illustrates the great diversity in instructional approaches. It should also be remembered that the use of models and flowcharts represents one way of organizing content. Whether or not one selects this method of analyzing and further developing curriculum objectives will depend on prior experience and willingness to experiment.

To evaluate this experience, the workshop leader asked the participants what learning took place. Some of the responses include:

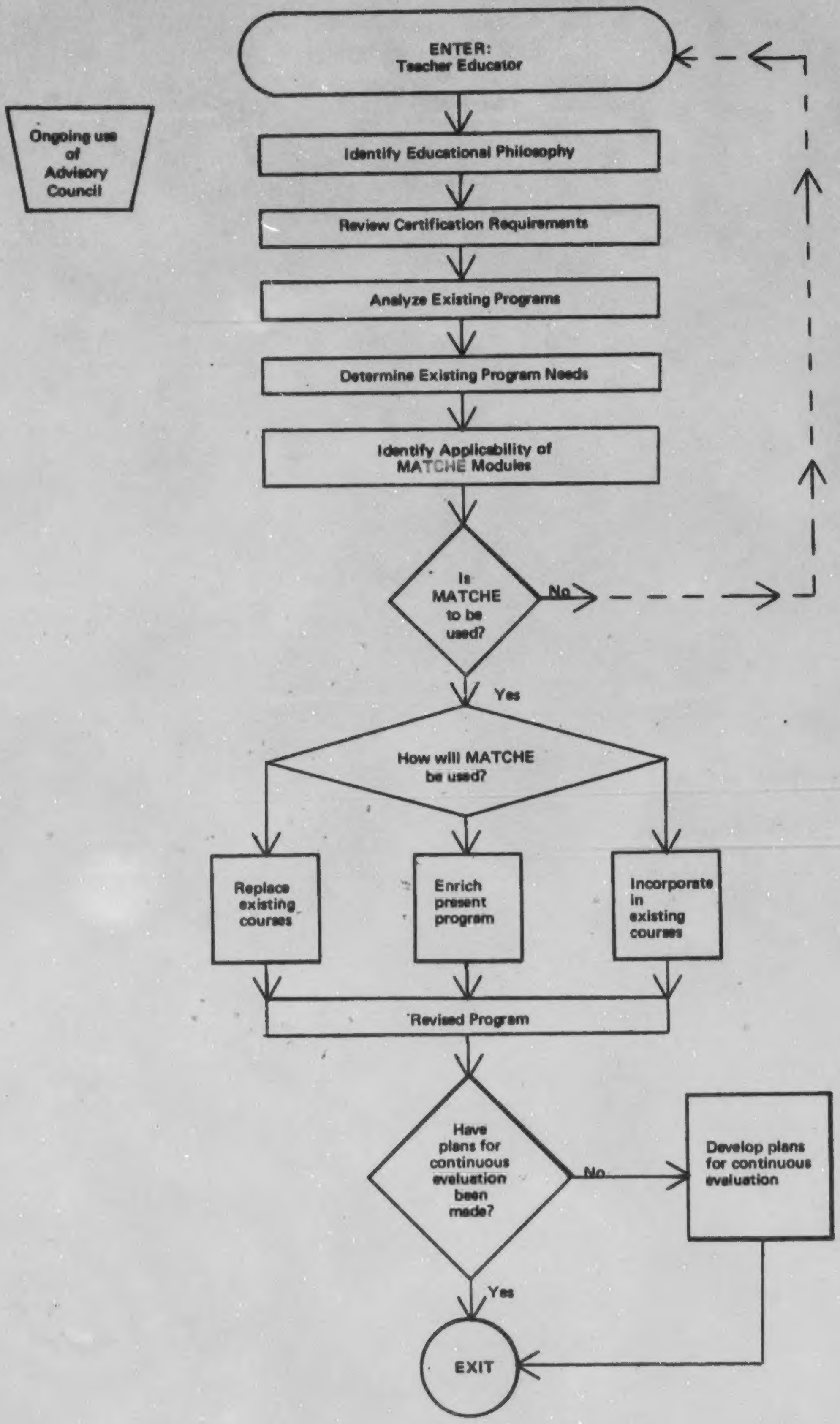
> -"Our group got a feel for how to go through the decision-making process and now they feel they will be able to go ahead and do it on their own."
>
> -"I think one of the things that we discovered was that in order to efficiently use a new system you need to really start within the framework or organization you are accustomed to working with; then transpose it, thereby gradually becoming familiar with the mechanics of the new system."
>
> -"We found that we had various backgrounds which we had to discuss and deal with. We found that each approach had valuable influence, so we tried to incorporate ideas from each different background."

Further, as brought out by Alberta Dobry, one of the decisions to be made when writing modules is how specific and how generalized they should be. Should they be specific enough to assure that students really zero in on a problem or general enough to apply to many situations? On the other hand, when dealing with cognitive areas, specificity should be employed so that foundation and groundwork is assured. When building and developing on this or branching out, then it would be possible to be general or even open-ended. The decision needs to be made in terms of a specific population of students.

Teacher Education

The group responsible for the following model chose to consider topics in deciding if and when to use MATCHE.

MODEL: Examination of MATCHE Utilization Process


ENTER: Teacher Educator
Ongoing use of Advisory Council
Identify Educational Philosophy
Review Certification Requirements
Analyze Existing Programs
Determine Existing Program Needs
Identify Applicability of MATCHE Modules
Is MATCHE to be used?
No
Yes
How will MATCHE be used?
Replace existing courses
Enrich present program
Incorporate in existing courses
Revised Program
Have plans for continuous evaluation been made?
No
Develop plans for continuous evaluation
Yes
EXIT

EXPLANATION: EXAMINATION OF MATCHE UTILIZATION PROCESS

We felt that what we did with this particular package would be influenced by the advisory committee. Certainly our own educational philosophy, our school's, the educational philosophy of our staff, and the certification requirements would be factors to consider in utilizing MATCHE materials. Then we felt we needed to determine the existing program's needs. Where was our program inadequate? Of course, at this stage we could have gone through a very long and complex flowchart to decide this type of thing. We have bypassed many side areas which, due to time limitations, we were not able to fully develop. We next indicated that we needed to identify the MATCHE modules which would be useful to our program. Having considered all these elements, we had to decide if MATCHE should be used. Some people could decide to go back to the educational philosophy; others might prefer going back to the existing program. If we decided to use it, then we would need to decide how MATCHE would be used. The latter was the original question, but we felt that we needed to have these preliminary inquiries before we were ready for this decision. We did decide that MATCHE should be used, so our next question really was how will it be used? Will it replace the program that we have now? Will we completely throw out what we've got? Will it be used as an enrichment of the program or will it simply be incorporated in some sections or taken in place of others? Our revised program will be based on these decisions.

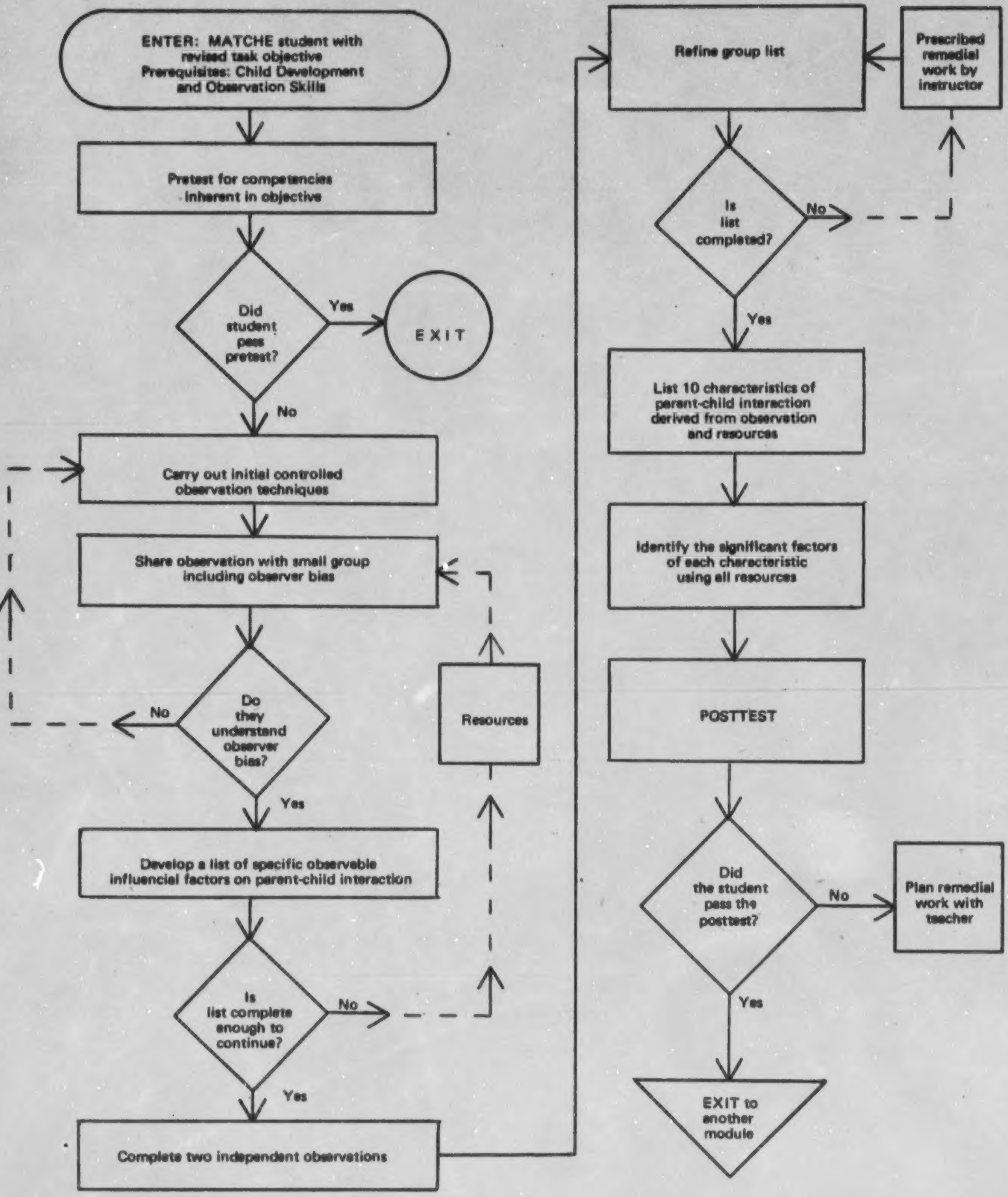
Area: Human Development

Strand: Economically Depressed Area

Module II: The Child and the EDA Family

Unit 1: Child Rearing Practices and Philosophy

Objective 1a: For a high school homemaking III class studying child rearing practices, the MATCHE student will plan an observation session of at least six mothers representing a variety of neighborhoods, education experiences, and ethnic backgrounds as they interact with their preschool child in a social situation. At the end of the unit, the MATCHE student will be able to list from memory eight out of ten characteristics of observed mother-child interactions and explain in writing the significance of each.


ENTER: MATCHE student with revised task objective Prerequisites: Child Development and Observation Skills
Pretest for competencies inherent in objective
Did student pass pretest?
Yes
EXIT
No
Carry out initial controlled observation techniques
Share observation with small group including observer bias
Do they understand observer bias?
No
Yes
Resources
Develop a list of specific observable influencial factors on parent-child interaction
Is list complete enough to continue?
No
Yes
Complete two independent observations
Refine group list
Prescribed remedial work by instructor
Is list completed?
No
Yes
List 10 characteristics of parent-child interaction derived from observation and resources
Identify the significant factors of each characteristic using all resources
POSTTEST
Did the student pass the posttest?
No
Plan remedial work with teacher
Yes
EXIT to another module

EXPLANATION: HUMAN DEVELOPMENT

First, our group went through a rather complex decision-making process on conceptual outlines, trying to make some kind of outline that made sense to us. We came out with a conceptual outline of things we wanted to cover in one way or another. One of the important things we did try to accomplish was redefining our objective just a bit. We chose Module 2, the EDA Strand, Unit 1: Child Rearing Practices and Philosophy. We changed Objective 1a to read: "The MATCHE student will plan an observation session of at least six parents representing a variety of neighborhoods, education experiences, ethnic backgrounds and family characteristics as they interact with their preschool child in a social situation. At the end of the unit, the MATCHE student will be able to list from memory eight out of ten characteristics of observed parent-child interactions and explain in writing the significance of each." This is our revised objective after working on our conceptual outline.

Now an explanation of our model. ENTER: MATCHE student with revised task objective; and we have two prerequisites, 1) the child development class and 2) observation skills. These will be somewhat tested in the pretest. So the first task will be a pretest of the competencies inherent in the revised objective. Then a decision-making item--did the student pass the pretest? If yes, then they go on to another unit. If no, then initial controlled observation would be the next task. We thought maybe videotaped observation that all the students could look at would be good. They could then share their observations with a small group including observer bias. In other words, we want them to discuss in this first task their own observer biases. As they were looking at this one controlled observation, what were the differences they saw between each other's observations? The student should have some understanding of observer bias and what that means so that as they go on to the other observations they will begin to understand that factor as well as other factors. The next task would be a decision-making situation--do they understand observer bias? If they don't, we didn't feel it would be of any use to have them go on to the next observation. If they do, they continue on to the next task. If they do not, they recycle back up to working with another initial controlled observation, perhaps this time it would be with an instructor helping. If they do understand initial observer bias, they continue to develop a specific list of observable influential factors in a small group. Out of this small group experience they would create the list of those things they felt were important. Then the question is asked, is the list complete? If no, this would be a time when they go back and work with the instructor--back into resources. Obviously, the instructor is going to feed in additional resources now that will make a feedback cycle happen. When it is yes, then they continue on with two independent observations on their own and they refine the group list on their own. In another session with the instructor, the question is asked, "Is this list now complete--perhaps not absolutely complete, but is it coming along?" If it seems not to be complete, then additional work with the instructor would be prescribed. The student must then go back to some previous point. We thought about going back to observations but then we felt perhaps that's not where the problem lies. The instructor should choose exactly where they would reenter the system. We are saying that the instructor would prescribe where the student would reenter. If the list is developing and the answer is yes, then the student will list ten characteristics of this interaction from the observations and go into resources and try to really refine them. Then the student would identify the significance of each of these factors using all the resources including the instructor. A posttest would be the last task. If the student passes the posttest, then an exit occurs. If the test is not passed, remedial work with the instructor is planned.

Area: Housing

Strand: Consumer Approach

Module III: Procedures for Selecting Housing

Unit 3: Selecting a Single Family Dwelling

Objective 3g: The MATCHE student will be able to select housing to meet the specific needs of a family according to the following criteria.

1. design: exterior and interior
2. layout: floor plan
3. orientation
4. safety features
5. building materials
6. sound controls
7. insulation and heating
8. lighting
9. window placements
10. door swings
11. storage
12. work centers

chart on next page

Objective:

Given all necessary information, the student will be able to select housing to meet the specific needs of a family according to the following criterion:

- Floor plan design and layout

(Competencies-Modules)

I Circulation

- A. Locations
    - 1. Doors
    - 2. Windows
    - 3. Staircase
    - 4. Service entrance
    - 5. Guest entrance
    - 6. Kitchen
- B. Door swings
- C. Direct routes
- D. Dead-end "living" space

II Orientation

- A. Proximity
    - 1. Sun
    - 2. Neighbors
    - 3. View
- B. Solar heating
    - 1. Window location
    - 2. Window size
    - 3. Specific room locations

III Flexibility

- A. Closed plan
- B. Open plan
    - 1. Movement between rooms
    - 2. Divide
    - 3. Close off

IV Zoning

- A. Major Zones
    - 1. Activity
    - 2. Work
    - 3. Quiet
- B. Segregation
- C. Relationship within
- D. Buffers
    - 1. Halls
    - 2. Closets
    - 3. Storage

EXPLANATION: HOUSING

I think we approached ours a little differently in that we went through the objectives and then chose one subject. We wanted to focus a little bit more specifically on one problem, so ours is a bit more specific. The objective that we chose is listed here: "Given all necessary information, the student will be able to select housing to meet specific needs of the family according to the following criterion." There were about twelve listed and we thought we couldn't manage that in this short period of time so we chose one, the floor plan design and its layout. We tried to come up with some specific competencies that would be important here relating back to this floor plan idea and we thought that each of these could be separate modules. Then within these specific competencies or modules (I, II, III, IV), we listed subheadings and this would actually get into course content. These modules or competencies are circulation, orientation, flexibility and zoning, all relating back to this basic idea of floor plan layout and design. We then listed specific ideas for circulation, locations like door locations for the structure, window locations, staircase location, entrance areas; also kitchen relationship to other rooms in the house, directions the doors swing, direct routes leading to particular areas, and living space being more or less a dead end--protected space for the tenants. Then the second module, orientation, would be based on proximity and relationship to the neighborhood area, the view, solar heating and what goes into this as far as the basic design is concerned; and then the same ideas related to flexibility.

It must be remembered, that this module is very specifically related to our culture and the idea of talking about house design and dwellings related to different societies and cultures within the specifics listed here might be very different.

Area: Management

Strand: Consumer Approach

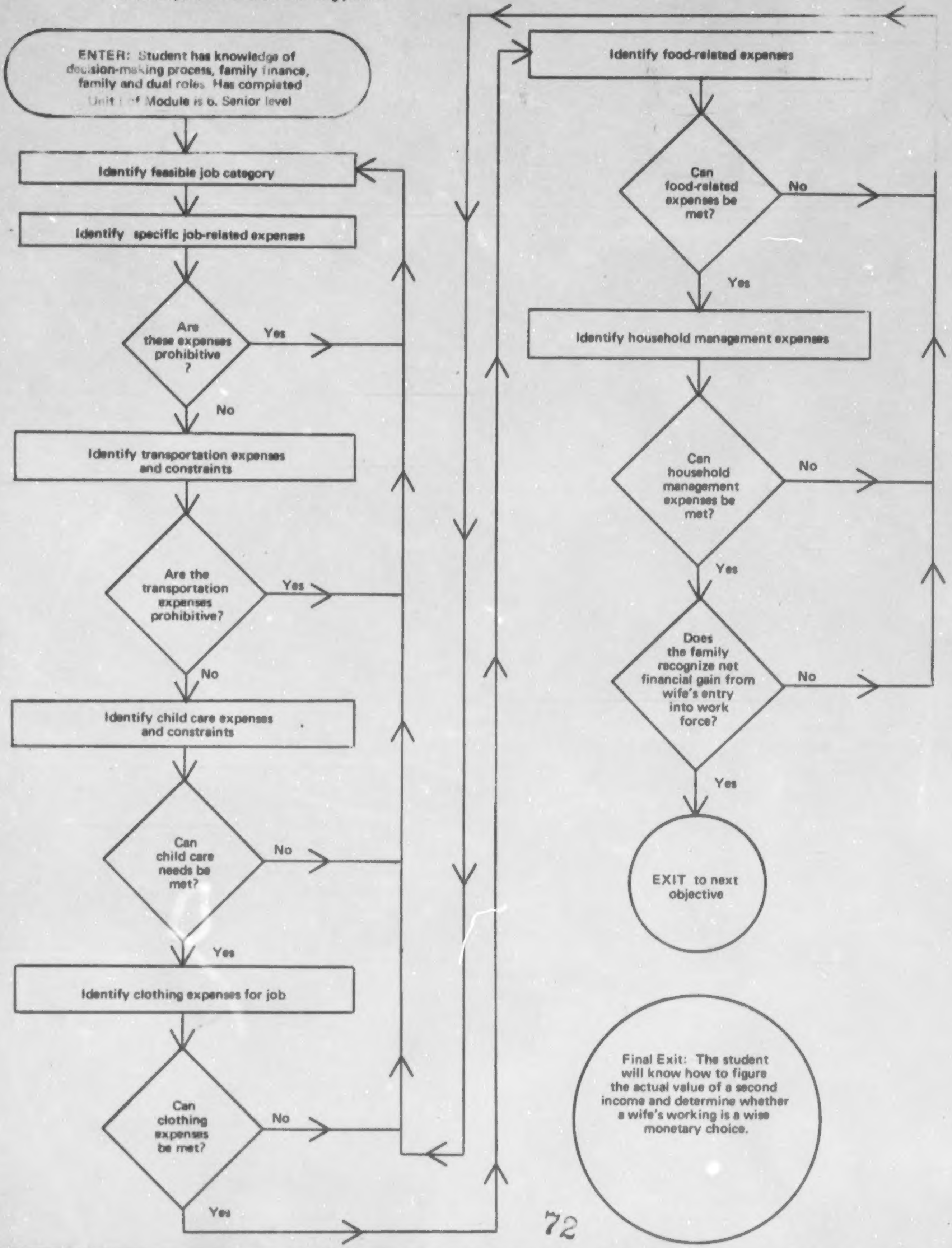
Module VI: Management View of the Dual Role

Unit 2: What a Second Income Really Means

Objective 2c: The MATCHE student will be able to figure the actual value of a second income and determine whether it is monetarily worthwhile to the family.

What A Second Income Really Means

Objective: The student will be able to describe the various job-related expenses of a second working parent.


ENTER: Student has knowledge of decision-making process, family finance, family and dual roles. Has completed Unit I of Module is 6. Senior level
Identify feasible job category
Identify specific job-related expenses
Are these expenses prohibitive ?
Yes
No
Identify transportation expenses and constraints
Are the transportation expenses prohibitive?
Yes
No
Identify child care expenses and constraints
Can child care needs be met?
No
Yes
Identify clothing expenses for job
Can clothing expenses be met?
No
Yes
Identify food-related expenses
Can food-related expenses be met?
No
Yes
Identify household management expenses
Can household management expenses be met?
No
Yes
Does the family recognize net financial gain from wife's entry into work force?
No
Yes
EXIT to next objective
Final Exit: The student will know how to figure the actual value of a second income and determine whether a wife's working is a wise monetary choice.

COMMENTS: WHAT A SECOND INCOME REALLY MEANS

At one point, we discussed the psychological benefits of a second income, and then we looked very carefully at our objective. It was simply, "Is the family going to benefit financially from this second income?" So we felt we should look at finances and the psychological part of it should be developed further at another time.

Note: The remaining portion of this tape was inaudible.

Area: Textiles and Clothing

Strand: Consumer Approach

Module III: Clothing Needs of Individuals

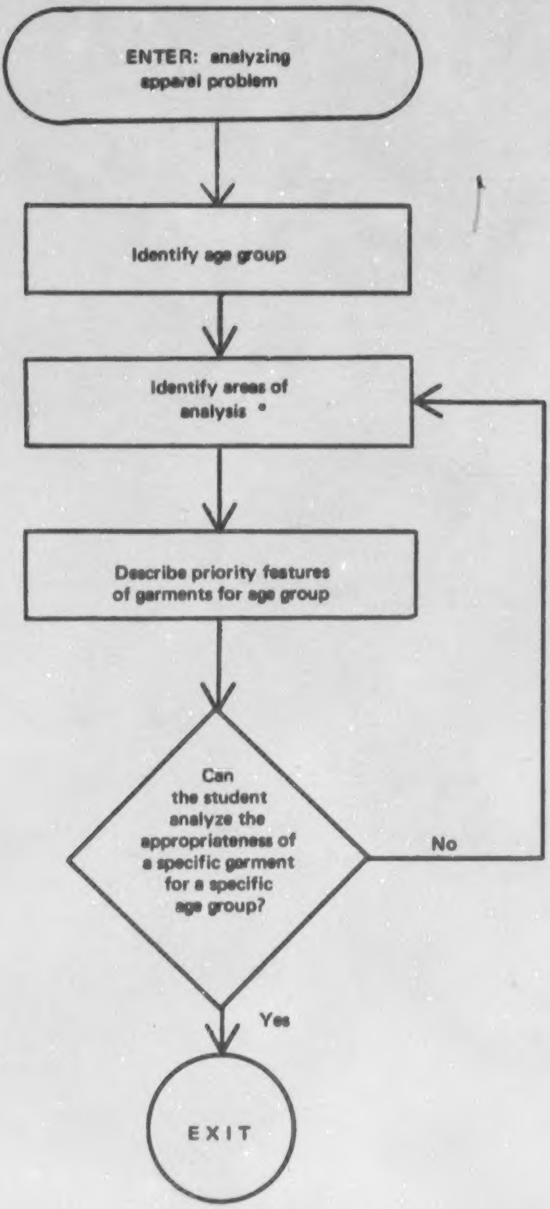
Unit 1: Clothing for Various Ages

Objective 1c: The MATCHE student will be able to analyze apparel for suitability, appeal, economy, and durability for an infant, a preschool child, an elementary school child, and a teenager.

Clothing for Various Ages

Assumes basic competencies in:

- Textiles
- Construction
- Human Development
- Design


ENTER: analyzing apparel problem
Identify age group
Identify areas of analysis *
Describe priority features of garments for age group
Can the student analyze the appropriateness of a specific garment for a specific age group?
No
Yes
EXIT

* Decision Chart Follows

Decision Chart

Analyze Apparel

- Durability
  - care
  - fiber content
  - finishes
  - construction methods
- Suitability
  - comfort
  - appropriateness to activity
  - environment (culture)
  - appropriateness to individual development and/or needs
- Appeal
  - comfort
  - cost
  - status
  - appearance
    - color
    - design
    - texture
    - fiber content
- Economy
  - fiber content
  - durability (life span
  - cost
  - upkeep

Age Groups:

Infants
Preschool
Elementary
Teenage

Area: Foods and Nutrition

Strand: Consumer Approach

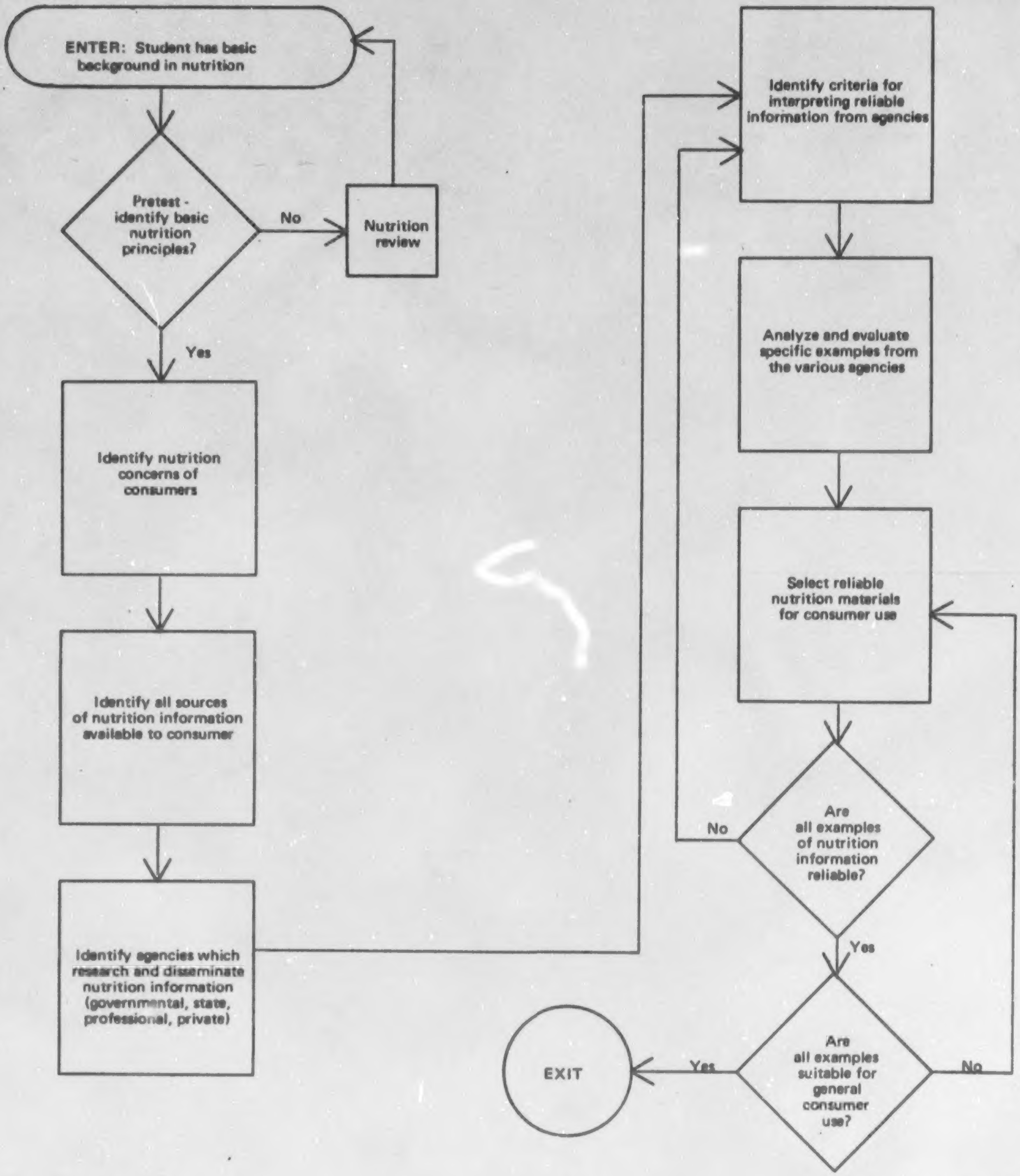
Module III: Consumer Aspects in Planning Meals

Unit 3: Reliable Sources of Nutrition Information

Objective 3a: Given various commonly available publications with articles on nutritional standards and needs, the MATCHE student will be able to identify and evaluate the content of each as reliable or unreliable, and identify those which would be understandable and valuable for the consumer.

Objective 3b: Given various books and pamphlets from government, professional, and private organizations with content on nutritional standards and needs, the MATCHE student will be able to identify and evaluate the content of each as reliable or unreliable, and identify those which would be understandable and valuable for the consumer.

Competency: Ability to analyze and evaluate nutrition information, identify reliable and appropriate sources of such information, and recommend such for the consumer.


ENTER: Student has basic background in nutrition
Pretest - identify basic nutrition principles?
No
Nutrition review
Yes
Identify nutrition concerns of consumers
Identify all sources of nutrition information available to consumer
Identify agencies which research and disseminate nutrition information (governmental, state, professional, private)
Identify criteria for interpreting reliable information from agencies
Analyze and evaluate specific examples from the various agencies
Select reliable nutrition materials for consumer use
Are all examples of nutrition information reliable?
No
Yes
Are all examples suitable for general consumer use?
Yes
No
EXIT

CHALLENGE FOR IMPLEMENTATION

by Dr. Alberta Dobry

When we explore the literature concerning curriculum implementation, we find that educators are in general agreement that to be most effective programs ought to be tailored to individual students. This doesn't necessarily mean that all the objectives and content of each course should be different for each student, but rather that the program should capitalize on the individual variances among students. Those of us with any degree of experience recognize the astonishing range of academic skills among students in the typical college classroom. Ideally, an educational program makes use of strengths and promotes opportunity for development in areas of academic weakness.

There are many ideas being highlighted as needs within educational systems. However, there are two areas in which the elementary and secondary systems might be somewhat ahead of colleges and universities. These areas are accountability and individualized programs. The reasons for this status vary and some of the reasons are highly legitimate. The gargantuan class of several hundred students has grown increasingly common as university budgets have become more restricted.

The major deterrent to individualizing college instruction has been the high ratio of students to faculty teaching time. To bring the ratio down to manageable proportions by either hiring additional faculty or reducing student admission isn't reasonable under current social and economic circumstances.

Thus, there is a need for alternative approaches such as mentioned earlier. One satisfactory approach is to put students into instructional roles. Institutions such as Purdue University and Michigan State University have used undergraduate student assistants or teacher aids very successfully; through the use of credits rather than salary. So, if additional personnel seems to be the only route for implementing individualized instruction, then I encourage you to investigate this alternative.

The other options previously mentioned revolved around modification of existing programs. Surely, one of the alternatives which we explored, or an adaptation of one, would work in your respective situations.

It might be added that one big advantage to materials such as MATCHE is that the instructor can readily see the progress that students are making as they work their way through the materials. This may be somewhat of a selfish motive, but it's an important one--if nothing else from a psychological standpoint of the instructor. Even more important than that is the students can see where they are going and how well they are doing. They tend to respond better under these circumstances. When students respond positively the instructor tends to respond better in turn. You know from your own experience that once this sort of a motivational cycle gets established it tends to be somewhat self-generating and leads to better performance from both sides of the desk, so to speak. This entire motivational system is enhanced, of course, when students see that a program is planned to accommodate their specific needs, abilities and learning patterns. The MATCHE materials allow for these factors.

Another thing that the MATCHE materials do is they spell out the criteria for behavioral accountability. The movement toward behavioral accountability came partly out of a growing conviction that desired educational outcomes can be specified and measured with reasonable precision. Another push for accountability has come from those who support public education--the taxpayers. They are no longer willing to accept uncertain returns for their investment.

Similar pressures also come from our college students. They quickly voice their feelings about having their time wasted or their disappointment in programs which fail to adequately prepare to successfully attain their career goals. The more vocal nature of students not only comes from their increased involvement in curriculum planning but from their increased responsibility in financing their own education as well. Students expect to be prepared for the careers we say our programs prepare them for. We must assume responsibility for this. That's what being accountable is--it's being responsible.

The increasing costs of funding quality education have necessitated stepped-up efforts at improving the effectiveness and efficiency in teacher education. The scarcity of financial resources has forced the need for accountability.

Paralleling the increased emphasis on accountability has been the increased use of systems approaches in designing teacher education programs. It has been predicted that in the decade or two efforts toward improving accountability through systems design will produce teacher preparation programs that include the systematic specification of instructional objectives, teaching behaviors or competencies that can best effect those goals, and attitudes and feelings that contribute to a healthy climate for learning.

Such systematic specifications will lead to a total revision of present teacher licensing. This prediction isn't so very futuristic when one notes that several states have adopted certification procedures based on accomplishment of teacher competencies defined in terms of knowledge, teacher performance and specified pupil outcomes.

Traditionally, teacher competencies have been defined rather ambiguously. And, traditional teacher preparation programs have been concerned primarily with knowledge criteria for the assessment of objectives. Further, teacher certification units and agencies have used collections of specified courses as the best available indicators of an accountability measure of meeting expectations.

As programs begin to shift toward systematized efforts it can be expected that there will be a major force directed toward innovation in education in the next decade. One may expect a shift from the use of grade-point averages to the use of verification systems concerning successful accomplishment of specified expectations. One can also expect a shift in focus from course titles to course content. The MATCHE materials provide just this--a focus on specified content and expectations.

Through the use and further development of MATCHE materials, which include reasonably precise statements of specific behaviors along with reliable procedures for assessing competence in terms of appropriate criteria, great strides toward accountability efforts may be made. These efforts can serve to fulfill the main purpose of schooling--that of engaging students in meaningful activities that result in significant learning.

In teacher education we are interested in the development of facilitative behaviors that will carry over and continue to grow once that student enters the profession. Thus, there is a need for the student to perceive some intrinsic value to learning or self-motivated learning won't develop. If we adopt and develop programs that shift the focus from the norm-referenced curve to a criterion-referenced base which provides opportunities for students to reach established standards, then they may take self-pride in their accomplishments.

With clearly stated objectives and standards or expectations specified, students are in a better position to modify their behavior in terms of the expectations. The natural reward of a good feeling when one achieves a goal may be easily attained through programs such as MATCHE. Further, this systematized approach to teacher education is commensurate with those approaches we tend to recommend for our preservice teachers to use in their future teaching.

We must teach in the same way that we want others to teach. We must serve as a model for the principles and processes such as individualized instruction which we promote. Only in this way can we be truly accountable.

PLANS FOR IMPLEMENTATION

by Ann Burrows

Introduction

During this portion of the workshops, the participants were divided into small groups by universities. They were to discuss how MATCHE could be implemented on their particular campuses. The ideas which resulted seemed to fall into two categories:

How Participants Plan to Implement: The plans discussed were shared by each group. Some of the ideas which follow were verbatum quotes from the tapes, other ideas were combined and condensed to offer maximum usefulness.

Problems in Implementation: This section involved the sharing of particular problems faculty foresaw on particular campuses.

How Participants Plan to Implement

-I plan to use these materials in a workshop on individualization and to show that if it can be done in teacher education, it certainly can be done in secondary education. I think many of these objectives would be similar ones that could be incorporated as mastery ideas for some courses at the secondary level.

-We thought MATCHE would be useful as an in-service program for our faculty and we thought the way to implement it would be through a demonstration using students who have participated in the validation of MATCHE materials.

-We can see this as an excellent system for updating personnel and staff and for in-service training. We can also see using MATCHE for setting up total courses or parts of courses, and in the education field implementing this idea almost totally in methods classes, in career education, and in curriculum.

-I can see right away I could use this material in the careers class working directly with people in the community.

-We will make MATCHE readily available to all of the members in our department and encourage their implementation and use within their specific subject matter areas.

-MATCHE can certainly provide many ideas for expansion and exploration by the student teachers.

-MATCHE may be used as a guide for rearranging priorities of concepts within existing courses. The techniques presented here can certainly be taken and used to develop areas not covered in depth within our program.

-We thought that this would be a guide for us to use for curriculum revision to fit into the objectives of the liberal arts college--which gives us a little more of a problem than some of you realize--as well as into the objectives of our own department.

-We also feel this would offer an opportunity on the campuses between the various subject matter areas to cross lines--that we're not just doing things, say in environment and foods and clothing, but we need to do more lateral types of planning as well as longitudinal.

-One thing I think they also might be used for is to compare the occupational and the consumer education strand at the state level for teacher educators so that they really see the comparison and how they interweave. The two strands really do build on each other but sometimes we have the idea that they are two separate programs. Using the occupational materials in regular consumer homemaking groups would help integrate the two areas. We really should be stressing occupational education in our consumer homemaking programs, as well as just the occupational programs.

-The MATCHE box itself can be used as a resource for students preparing for completion of requirements for teaching credentials.

-I would like to share MATCHE materials with our Center for Family Life Studies which is an interdisciplinary group.

-We are now about to develop a course on teaching strategies for people in other areas of education. There are many people going out for nutrition education and consumer education who also need to have some training in teaching strategies and this is another area where MATCHE could be implemented.

-It might be possible to see if the economically depressed strand would not be especially appropriate for sociology or maybe some of the other areas appropriate for special education.

-MATCHE materials may serve as an alternative way of developing curriculum materials. Instead of putting money into a total curriculum guide in an area, why not pay teachers to develop modules to add to this or to expand the modules so that they would be more appropriate but they still could be shared? And because one of the things they say--even about curriculum guides--is that we don't have the resources they suggest in those modules, perhaps then we might spend a little more money for building up libraries--material in schools, and that would be part of the reimbursement.

-We would use these objectives in specific courses and implement teaching assistants once again on our campus. Also it might be possible to introduce the MATCHE concept to several of our interdisciplinary studies that are already established on our campus.

-Suppose you want to do a human development module but you just don't think you would dare because of a conservative state board of education? Well, now, if these materials were individualized and in a package, students could choose the ones that would be most appropriate and not offend various community groups.

-Many activities in the Occupational Strand suggest interviews with community and school personnel. I would caution you about this and how you approach it. I agree that it's an excellent idea. For the first couple sets of students that you send out I would send them out with a technician and video tape equipment so that you can get that experience on video tapes. Then you don't have to keep sending students out over and over again. Make use of the first ones you send out and then as the video tape gets out of date or whatever, you can send out a new group and retape and thus facilitate your own efforts. If you don't have video tape then I suggest bugging your financial sources to get it. It's a critical part of learning and an excellent learning tool for many, many reasons.

-We would also support the use of audiovisual TV things in the community that could be brought back and packaged. We would like to take this a step further--we feel that we need to build a bridge to close the gap between the community and the institution--and develop departmental advisory committees and subadvisory committees related to subject matter areas.

-The way I and my colleagues see that we can implement MATCHE materials primarily at first is as a supplement to our regular course work. Because there is a good interdisciplinary approach we certainly can take sections and implement them in our regular course work. And then we have a couple of specific courses we can plug into. For example we have a class called Gainful Employment in Consumer Homemaking Education that's taken primarily by teacher preparation students and I can see several aspects of the Occupational Strand that we could use. We also have a class called Management with Limited Resources and I think that there are several aspects of the Economically Depressed Strand that could be incorporated into that particular course.

-Also on my own campus I'm going to share these with the faculty in the form of "master concepts" for some courses. These concepts would be considered essential for all students to master whether they are in general education courses or are preparing to be generalists in home economics.

-We might use this spring as a time to introduce the faculty to MATCHE--to present information from the workshop and also present copies of the materials to faculty in each of the subject matter areas; we think we would use an area approach to much of the information. In the fall--the week before school--areas will meet together to see where they might be able to put some of these ideas into the existing curriculum.

-We suggest that departments appoint a faculty committee (or perhaps there is one already in existence) to coordinate the use of MATCHE--find gaps in the material, and where there is overlap, and try to improve those situations.

-We plan to redo modules in relation to our specific program and to request funds from various sources (innovative teaching, etc.). With these funds we hope to get a faculty member released to develop modules which would be of particular help to our program.

-Another thing we hope to do next year is to have students work on developing modules. Through this, they might be more likely to go out and use a similar approach--a modified approach when they get into a high school teaching situation.

-We could use some of these modules in field experience courses and we could develop more modules for field experience.

-MATCHE might be used as a guide for independent studies.

-We can use MATCHE as a take-off point to develop other curriculum.

-We are using MATCHE materials in our classes now, and we've created a new occupational course which is required for credential candidates but we let anyone else take it who is interested.

-One thought that was brought out was that if we used this with teacher educators it would be good background for them to get right into developing the individualized learning strategies for the secondary level. This would release time for the teacher to give more time to the individual student.

-A high percentage of our college students work in areas which would be applicable to the occupational CORE. Through these work experiences students are able to build units on their own past experience and also find their own field experience for building additional units. Having so many students work nowadays is a real advantage in terms of the occupational CORE.

-Those instructors representing the community colleges saw MATCHE as a vehicle to assist in articulation and integration between two-year institutions and four-year institutions. Because programs are so varied in community colleges a transfer student's competencies could be determined through several pretests based upon curriculum objectives. These instructors were intrigued by the process--the individualization and competency-based curriculum, and plan to use the process in developing curriculum at their own institutions.

Problems in Implementation

-Faculty might be afraid of the Economically Disadvantaged Strand. Most faculty are middle class and really don't know how to grab hold of the information.

-One of the outcomes of individualized instruction is that you gear the student toward a high grade and this is a conflict in the system where administrators are pressuring for 60 percent of grades issued must be C. Many of us are involved in institutions which are forced by chancellors' offices to become accountable by a governor who is forcing accountability. Does accountability mean we can't give A's and B's without giving 60 percent or 68 percent C's or whatever the case may be? If so, how can we really do the best job with this kind of education? One way of meeting this challenge is to use the time factor. If students are really able to accomplish the work and do it well without doing it over--and this is finished within a certain time span, then they're given an A. It is a combination of time span in addition to the quality of work produced. There is a possibility also of allowing the student to repeat and reach a certain mastery level.

However, it is the grade at that level that is recorded and it's likely you are going to end up with the same A's and B's. To solve this problem, one university sent in a two-page report that really pointed out why they felt justified in what they were doing. The report went to a special committee and it will eventually go to ETC which will then go to the whole faculty. It was felt that other departments on their campus had the same complaints.

Our president is supportive of the criterion reference way of grading, and I don't know whether you know that about your presidents or not, but I think that's probably the first step.

I think the people we have to convince on our campus is the educational policies committee at this point, but the pressures are coming to them from some other source.

FUTURE DEVELOPMENT OF MATCHE

by Nona Verloo

Editor's Note: Cay Welsh, Chief, Bureau of Homemaking Education, gave the Future Development of MATCHE at the San Francisco workshop. We regret that those tapes were too inaudible to be used.

Where does MATCHE go from here? The question really becomes, "Where do you want it to go?" This inquiry suggests a challenge because the MATCHE curriculum includes almost endless possibilities for exciting new directions.

MATCHE can be seen as two things: a product and a process. It can be used with students to create a product; the process and its uses seem more important. How it is accomplished, i.e., the management approach, represents a new system not only for preservice education but also a new process for all of education.

How can MATCHE relate to education as a whole? Let's take a look at some of the things that are happening in education today.

We now realize that different learners have different learning styles. They learn at different speeds; they learn in different ways--some of them like lectures, others prefer discussion, some learn better alone, some learn better in smaller groups, some in large groups; some people like a variety of styles, different paces and so on.

A change which has recently taken place is the variation in organizaing classrooms. In an elementary school classroom with 20-25 students, it is not uncommon for 10-15 parents or paraprofessional teachers to be in the classroom at the same time. In this situation , the professional teacher becomes a facilitator or a program manager--a manager of a small business in one room.

Are we preparing our students to go into classrooms where they may be working in this kind of situation? Will they be flexible enough to change teaching styles if they must? These changes definitely have implications for intermediate and secondary education as well as elementary.

RISE (Reform in Secondary Education) Commission recommendations will need to be watched. If adopted, their recommendations could have far-reaching effects on education in California. A few of their recommendations include: 1) the elimination of tenure, 2) allowing secondary school students to challenge a course and receive credit without taking the class, 3) a process whereby secondary students can be given a leave of absence from school to study away from home, to travel or to go into the community and into businesses to learn on site, thereby making greater use of community resources. Programs would then need built-in flexibility.

In light of these possible changes, what is happening to the students you are graduating from your insitutions? How will they be able to cope with these new innovations or changes that may be brought about as the result of legislation or experimental programs or as a result of the RISE Commission recommendations? Will our teachers be able to operate in these new situations? Will you or I be able to if the situation should arise? These are rather serious questions which need consideration.

Where does MATCHE go from here? Where can it go? MATCHE can be built into your institutions. You can adapt it as you like. You do not have to adopt it as is, you can incorporate here or there. You can build new modules, or throw some modules out. You can expand modules that have not yet been expanded, you can change some things, add new materials upgrade, refine, and so forth.

It has been mentioned that MATCHE will never be finished. This might be what you would call "living curriculum". I see it as the kind of thing that builds and moves, you add a little bit here and you take a little bit out there. If something becomes obsolete you just pick it up and throw it away. If something new happens or there is a new piece of legislation, then add something. In a sense then, this curriculum evolves and it "lives" from day to day--it does not become stagnant.

Where can we go? It seems to me that we could expand our horizons and say this process--the materials that have been developed--the modules, the packets--could be used in many ways:

-correspondence courses for teachers who live in remote areas of California.

-external degrees: is it conceivable that students could earn a masters or a doctorate through such a process or system? The students could study where they lived, coming to the institution to be on compus for one semester or whatever the requirements might be.

-in-service education: why not use MATCHE for in-service? This could involve education for those teachers who have been out and had a year of teaching; we can give them modules to take them to the next step to help them grow.

-workshops: another possible use.

-emergency needs: what about that teacher whose principal says, "I want you to take on work experience," and that teacher has had little or no experience in it--MATCHE materials could help here.

-We might utilize a mobile unit from the SHARE (Services to Home Economics Activities and Resources in Education) resource center and could take modules that were needed or requested by teachers to more remote areas of the state. The teachers could have the materials to work on and then a college professor could be sent to the site.

-MATCHE could revolutionize the rest of vocational education. For example a professor from Bakersfield involved in the area of teacher education in business used the occupational strand. Plans are to expand to other subject matter areas.

-new credential requirements: MATCHE materials can change as requirements change.

-designated credentials: those individuals who are out in the field who have had occupational experience could use the MATCHE curriculum materials to meet designated credential requirements.

- MATCHE materials could be used in adult education or with graduate or postgraduate students.
- articulation: why couldn't the MATCHE process be used to strengthen articulation between secondary, community college, and university?
- mini-courses: MATCHE materials could be used in refresher courses to update information. We all have students that perhaps would really like to go into depth in a certain subject or need materials for enrichment. If you have special interests in certain small areas, perhaps you could develop some modules there. It could also be used for exploration of other areas, special studies or seminars.
- expansion of MATCHE's use to other states: interest has already been expressed in this. Numerous individuals have written to ask for the curriculum materials and could give all of us a sense of pride to know that we could be leading the nation.

These, then, are but a few of the ways MATCHE might be used. The list could go on and on, it is limited only by the limits of our imaginations.

To further the expansion of the use of MATCHE, the Bureau of Homemaking Education will do its best to obtain additional funding to continue to develop modules and will continue to offer support both financially and otherwise. Perhaps someone here would be interested in writing additional projects for funds to do the same kind of things on your campus. Are you interested? We hope so.

SUMMARY

by Ann Burrows

The purpose of the MATCHE I workshops was to disseminate the information contained in the MATCHE curriculum materials. Specifically, workshop participants had the opportunity to review the history, philosophy and possible uses of MATCHE; the process of building models as an instructional approach for a specific program, and the future development of MATCHE were also considered. Within the framework of the workshops, participants were given information by the developers of the materials as well as having the opportunity to work in small groups. These methods of working increased communication on all levels and created much enthusiasm and inspiration. Now the task as stated by Cay Welsh, Chief, Bureau of Homemaking Education, is to transfer that excitement to faculty members on home campuses so that implementation of MATCHE can begin immediately.

The implementation phase of MATCHE is extremely important since this is where the true evaluation of the materials will take place. In the words of Ron Dinkel, Alpha II, Inc.:

> "The ultimate test of the curriculum will come when we observe the strengths and weaknesses of the MATCHE-trained teacher two to five years from now as that teacher operates in the classroom."

As MATCHE materials are used in teacher education the implementers are encouraged to write additional modules and share them so that MATCHE can be the viable, growing program it was meant to be. MATCHE at this point is not fully developed. It is meant to be an ongoing or living curriculum. The developers of MATCHE felt that if they waited until it was "completely" developed, it might become out of date and the ongoing philosophy would be lost. The MATCHE box can be looked on as an "idea box" where the modules are rewritten, new questions and new activities and new resources are added according to student and class needs. Within this process, the materials should be constantly evaluated.

These workshops themselves were not without evaluations which are very valuable for planning additional workshops or initiating necessary changes in the MATCHE materials. At one point in the discussion the following points were brought out:

-We felt that the consumer approach in the area of human development would be hard for us to use. Some of the concepts were adequately developed such as those dealing with differences in people by culture and socioeconomic level. However, human interaction was not touched on and we consider this to be very important.

-Future modules that are developed ought to be more visually attractive--perhaps using illustrations of some kind, or charts, or different lettering to make them a bit more interesting. Also some of the paragraphs seem rather long and involved. They could be simplified for easier reading.

-The color of the print makes reading difficult in some sections, as well as making materials difficult to duplicate.

-One big strand to add to MATCHE is that of helping home economists take a leadership role in the political arena. We have much to offer in this sphere.

Further evaluation of MATCHE workshops and materials will be accomplished by Mr. Vern Halcromb, Coordinator, In-Service Training for Vocational Educators. Mr. Halcromb conducted an on-site evaluation, plans a follow-up evaluation one month after the workshops, and will do some specific evaluating of the MATCHE materials themselves. His report could be incorporated into the planning for future workshops.

APPENDICES

MATCHE I WORKSHOP

San Francisco
April 7-8, 1975

Los Angeles
April 10-11, 1975

PURPOSE: To provide university faculty an opportunity to gain an understanding of the MATCHE curriculum and to determine methods for implementation.

First Day

8:30	Registration	
9:00	Overview of Workshop	Gwen Cooke
	What is MATCHE?	Maurine Vander Griend
	History of MATCHE	Ruth James
	Current Status and Future Development of MATCHE	Cay Welsh or Nona Verloo
10:30	Take a break	
11:00	Reaction to MATCHE Materials - Why MATCHE Now?	Alberta Dobry
12:15	Luncheon	
1:30	How MATCHE Can Be Used	Alberta Dobry
2:15	What's in MATCHE?	Group Work by Institutions
3:45	Take a break	
4:00	Questions and Answers in MATCHE	Alberta Dobry

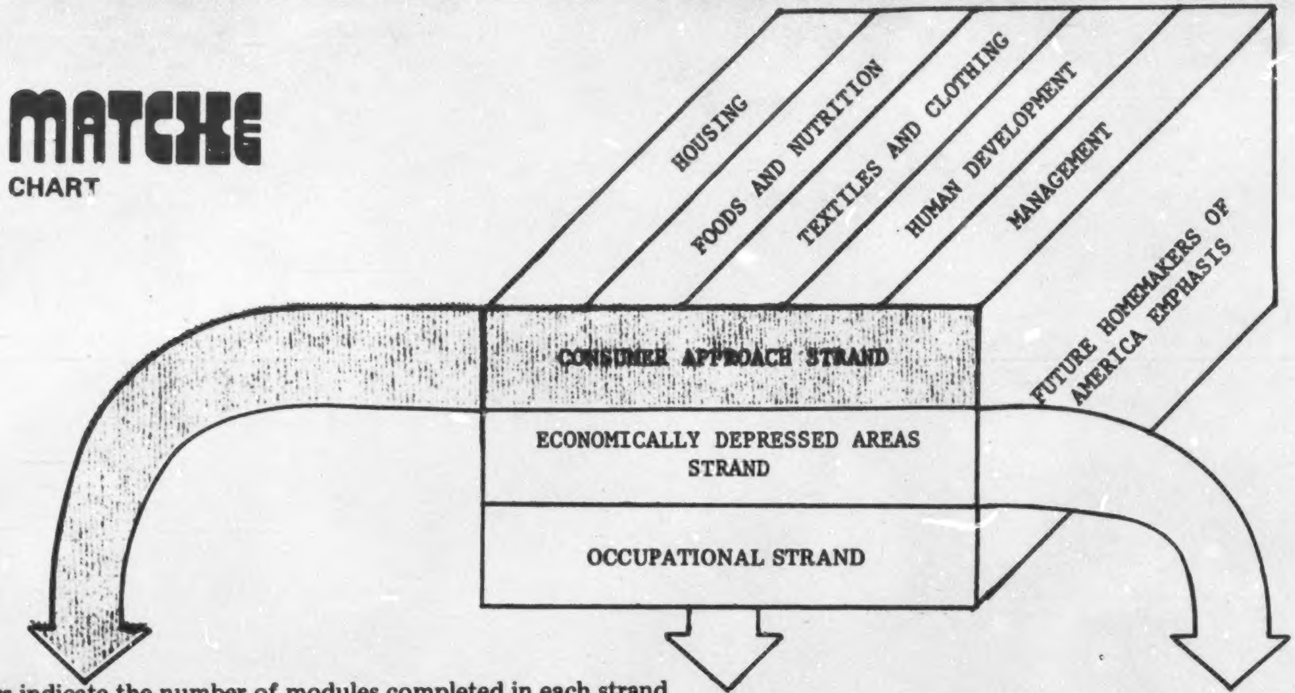
Second Day

8:00	Drafting a Model in the Management Area	Alberta Dobry
9:00	Building a Model	Subject Matter Specialists Food & Nutrition Housing Human Development Management Textiles & Clothing Teacher Education
10:15	Take a break	
10:30	Presentation of Models	Subject Matter Specialists
	Summary of Models	Alberta Dobry
12:15	Luncheon	
1:30	Challenge for Implementation	Alberta Dobry
2:00	Plans for Implementation	Group Work by Institutions
3:00	"My Reactions to Two Days of MATCHE"	Alberta Dobry
3:30	Closing Remarks Evaluation	Cay Welsh or Nona Verloo

APPENDIX A

CONSULTANT:	Dr. Alberta Dobry, Chairperson Home Economics Education, North Dakota State University
MATCHE PROJECT:	Dr. Ruth James, California Polytechnic State University, San Luis Obispo Cay Welsh, Chief, Bureau of Homemaking Education Nona Verloo, Assistant Chief, Bureau of Homemaking Education Maurine Vander Griend, California State University, Fresno
SUBJECT MATTER SPECIALISTS:	Ms. Sandra Crabtree, Textiles and Clothing California Polytechnic State University, San Luis Obispo Dr. Jean Heaton, Human Development California State University, San Francisco Dr. Marjorie Joseph, Textiles and Clothing California State University, Northridge Ms. Nancy Kwallek, Housing San Diego State University Dr. Shirley Larson, Teacher Education California State University, Sacramento Sister Paulanne Munch, Foods and Nutrition Mt. St. Mary College Ms. Vaunden Nelson, Management San Jose State University Dr. Maie Nygren, Housing California State University, San Francisco Dr. Larry Smardan, Human Development California State University, Fresno Dr. Elveda Smith-Nury, Foods and Nutrition San Jose State University Dr. Roine Thorup, Management California State University, Los Angeles Ms. Ruby Trow, Teacher Education California State Polytechnic University, Pomona
TEACHER EDUCATION SPECIALIST:	Dr. Margaret V. Barkley, Professor of Home Economics Arizona State University
WORKSHOP EVALUATOR:	Vernon C. Halcromb, Coordinator In-Service Training for Vocational Educators
DIRECTOR:	Dr. Gwen C. Cooke, Chairperson Home Economics Department California State University, Fresno

MATCHE
CHART


HOUSING
FOODS AND NUTRITION
TEXTILES AND CLOTHING
HUMAN DEVELOPMENT
MANAGEMENT
FUTURE HOMEMAKERS OF AMERICA EMPHASIS
CONSUMER APPROACH STRAND
ECONOMICALLY DEPRESSED AREAS STRAND
OCCUPATIONAL STRAND

The numbers indicate the number of modules completed in each strand

CORE: CONSUMER APPROACH TO HOMEMAKING EDUCATION (4)	CORE: ESTABLISHING OCCUPATIONAL PROGRAMS (4)	CORE: TEACHING HOME ECONOMICS IN ECONOMICALLY DEPRESSED AREAS (4)
Life Styles and the Consumer Community Consumer Resources Consumer Rights and Responsibilities *Incorporating the Consumer Approach in Homemaking Classes	*Analyzing Job Market Opportunities *Developing Occupational Programs *Implementing Occupational Programs *Evaluating Occupational Programs	Characteristics of Economically Depressed Areas Life Style Characteristics of Economically Depressed Areas Community Resources for Economically Depressed Areas *Developing and Implementing Programs for Economically Depressed Areas
AREA (Module) PACKAGES	AREA (Module) PACKAGES	AREA (Module) PACKAGES
HOUSING (6)	HOUSING (2)	HOUSING (3)
Consumer Use of the Community Procedures for Selecting a Community Procedures for Selecting Housing *Shopping for a Home Loan Procedures for Selecting Furnishings Maintenance Procedures for Surfaces, Furniture, and Appliances	Occupational Opportunities Related to Housing and Home Furnishings Required Skills for Retail Sales of Home Furnishings and Related Household Items	Low Income Housing Government Housing Programs *Low Income Furnishings

APPENDIX B

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FOODS AND NUTRITION (6) Sociological, Environmental, and Ecological Factors Related to Food Consumer Protection and Regulatory Agencies Related to Foods Consumer Aspects in Planning Meals *Cultural Food Patterns Influences on Food Prices Influences on Food Selection and Purchase	FOODS AND NUTRITION (3) Occupational Opportunities Related to Foods and Nutrition Operations and Activities of a Food Service Operation Managing a Food Service Operation	FOODS AND NUTRITION (3) *Food Availability in Economically Depressed Areas Low Income Food Patterns Meal Management on a Low Income
TEXTILES AND CLOTHING (4) *Consumer Approach to Textiles and Clothing Sociological, Psychological, and Economic Factors Affecting Clothing Selection Clothing Needs of Individuals Applications and Implications of New Technology in Textiles and Clothing	TEXTILES AND CLOTHING (3) Occupational Opportunities Related to Textiles and Clothing Custom-made and Assembly Line Garment Construction Merchandising Textiles and Ready-to-Wear	TEXTILES AND CLOTHING (2) Clothing the Individual and Family *Utilizing Resources for Clothing and Textiles
HUMAN DEVELOPMENT (5) Societal Changes Affecting the Family The Relationship between Spending Patterns and Interpersonal Relationships Financial Pressures and the Life Cycle *Individuals and Families in Crisis Consumer Aspects of Parenthood	HUMAN DEVELOPMENT (4) Occupational Opportunities Related to Human Development Children's Center Aide Developing Programs for Preschool Children Convalescent Home Aide	HUMAN DEVELOPMENT (3) *Characteristics of EDA Families The Child and the EDA Family Resources for the EDA Family
MANAGEMENT (7) Relationship between National and Consumer Economics *Consumer Legislative Issues Environmental Issues and the Consumer Financial Management Credit Management View of the Dual Role The Metric System	MANAGEMENT (2) Occupational Opportunities Related to Home Management and Supporting Services Occupational Preparation for Jobs Utilizing Housekeeping Skills	MANAGEMENT (3) Management Skills Money Management *Marketing Practices in Relation to Low Income Clientele

APPENDIX C

CYBERNETIC MODELS[1]

Table IV describes the levels of complexity of cybernetic models. It indicates first that cybernetic non-directional models are not possible. The whole point of cybernetic models is control or prediction of the very sequencing of system events that is missing in non-directional models. As a consequence, directionality is an essential ingredient in cybernetic systems.

TABLE IV

LEVELS OF CYBERNETIC ANALYSIS

Level	Elements	Operators	Form of Representation
Non-directional	Not possible by definition		
Cybernetic-Linear	Operations, Criterion Indicators, Status Indicators	Comparative with Pre-set Branching	Non-Iterative Branching
Cybernetic-Reflexive	Operations, Criterion Indicators, Status Indicators	Comparative with Pre-Set Branching	Iterative Flowchart; Goal-seeking: Exit depends on attainment of criterion
Internally Morphogenic	Operations, Criterion Indicators, Status Indicators	Comparative with Branching; Storage of Operations and Associated Status Changes	Self-correcting (Learning) Program

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[1] K. Dean Black and Carlfred B. Broderick, "Systems Theory vs Reality," A paper presented at Michigan State University. Spring, 1974. (selected portions included here).

The events that are controlled in a cybernetic model are the occurrence or non-occurrence of system behaviors. Consequently, the first requirement of a cybernetic model is a set of operations or system behaviors to choose from.

Behaviors are assumed to be chosen in response to information about some aspect of the current conditions of either the system itself or else its environment. The second requirement of a cybernetic model, therefore, is a set of indicators describing the status of relevant system/ environment features. In this paradigm, such indicators are called status indicators.

However, information about system/environment statuses is meaningful (i.e., capable of eliciting a system response) only when compared with some corresponding information that is already known or represented within the model. This information is represented in the model by what may be called criterion indicators. Criterion indicators allow status indicators to be identified. Both criterion indicators and status indicators may be either variables or operations.

Those three classes of elements--operations, status indicators, and criterion indicators--combine to form the basic cybernetic mechansim. That mechanism is perhaps most clearly represented in what computer programmers call the If Statement: If the relevant system/environment status matches in some way a corresponding criterion indicator (for example, if wife's mood is a playful one), then do a certain behavior (start playing around); if not, then do something else (go read the newspaper).

Cybernetic models are represented in flow charts. A flow chart is simply a statement of the sequence in which operations are carried out and include the "if" mechanism whenever a choice of operations must be made depending on some system/environment condition. Of course, the information in a flow chart may also be stated im simple narrative form, though perhaps not as effectively. Figures 6 and 7 show a basic cybernetic-linear model and a basic cybernetic-reflexive model in flow chart form.

Linear and Reflexive Cybernetic Models

The flow charts in figures 6 and 7 highlight the difference between a cybernetic-linear model and a cybernetic reflexive model. They are identical with the exception of one thing: what happens when the comparison shows that the status indicator does not match the criterion (as when wife is not in a playful mood). In a linear model, the next operation need not do anything to the status indicator (reading a newspaper will probably not alter wife's mood); however, in a cybernetic-reflexive model, the next operation is chosen specifically to modify the status indicator in the direction of the criterion. In other words, in cybernetic reflexive models, the criterion indicators become indicators of system goals. Thus, true goal seeking behavior may be represented for the first time with cybernetic reflexive models.

The looping goal-seeking mechanism of a cybernetic reflexive model is frequently called "feedback." However, it is important to distinguish between the cybernetic feedback mechanism and the positive and negative feedback loops of quantitative circular causal models. Feedback in quantitative models cannot be considered a goal-seeking mechanism. Quantitative-reflexive models

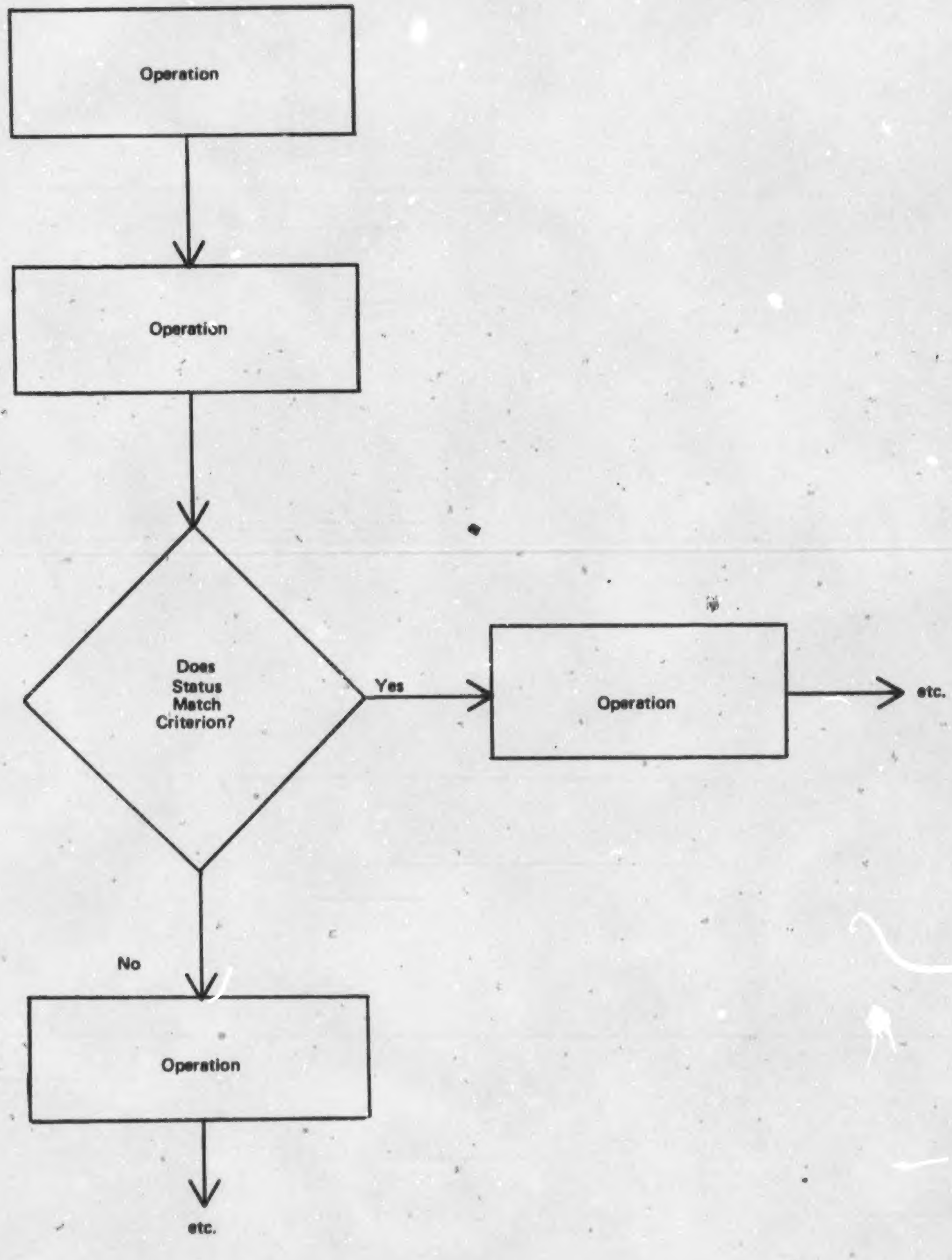

Operation
Operation
Does Status Match Criterion?
Yes
Operation
etc.
No
Operation
etc.

Figure 6. Flowchart Representation of Basic Cybernetic Linear Model

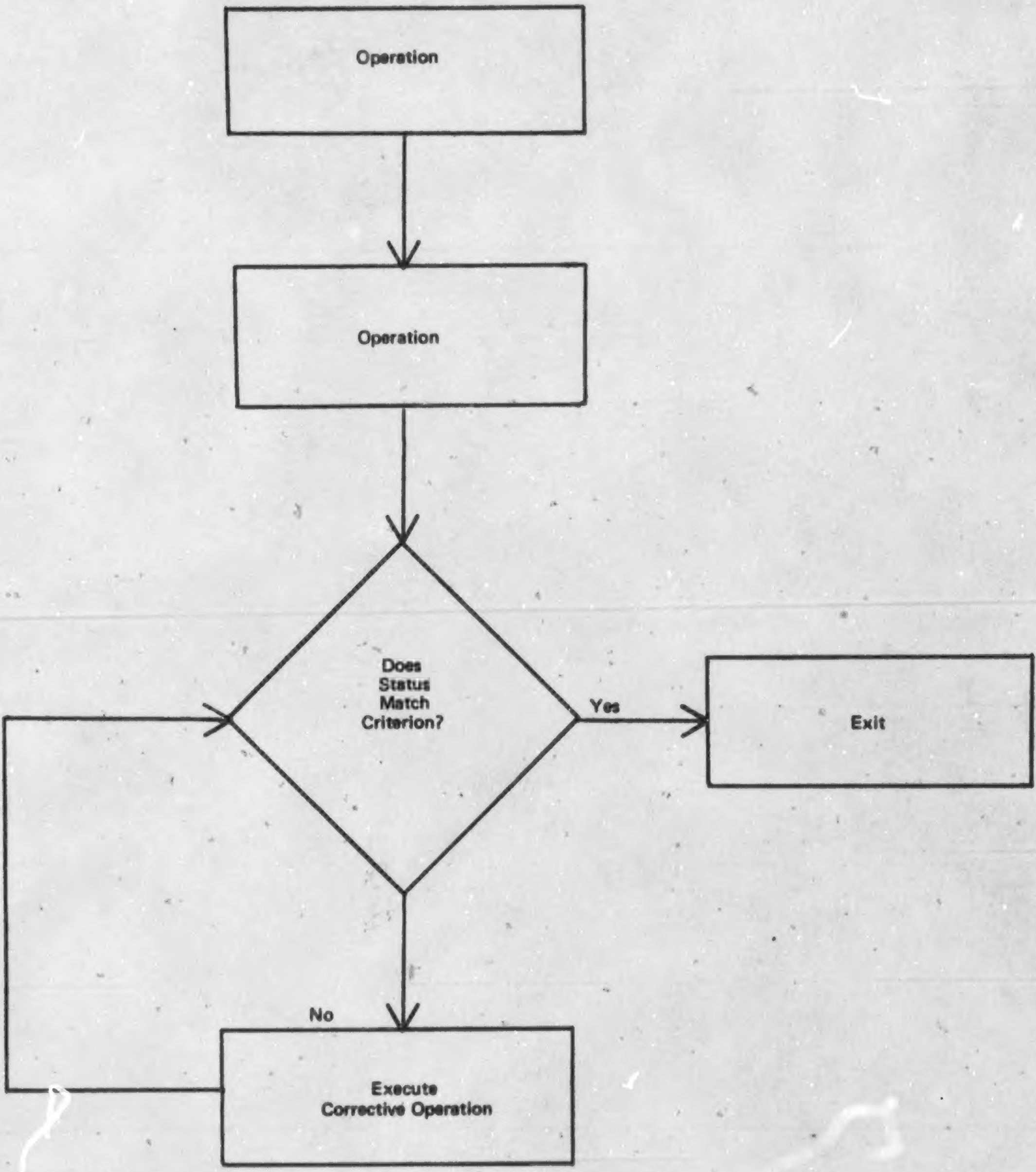

Operation
Operation
Does Status Match Criterion?
Yes
Exit
No
Execute Corrective Operation

Figure 7. Flowchart Representation of Basic Cybernetic Reflexive Model

contain no element that can represent a goal. Nor do they contain a comparison mechanism for deciding where the system stands with regard to its goal. Negative loops may appear to exhibit goal seeking behavior because they maintain a steady system state. But that apparent goal-seeking is simply a product of a particular pattern of mathematical relations. Quantitative models do not have the elements necessary to represent behavior selection oriented toward goal attainment.

Cybernetic-Morphogenic Models

As Table IV (p. 16) indicates, in linear and reflexive cybernetic models as described so far, the branching following comparison is pre-set. What this means is that what the system should do under various system/environment conditions is already known and is built into the model from the beginning. Presumably such systems will not encounter conditions for which they have no appropriate response. If they do meet such conditions adaptation will not be possible because they lack mechanisms for building in new responses. Real social systems adapt not only by making appropriate responses when they are known, but by discovering the appropriate responses when they are not. This process of generating new system responses is called morphogenesis. Appropriately, analytic model that is able to represent the morphogenic component of real systems is called a morphogenic model.

Table IV shows what is needed to transform a model that is adaptive in the pre-programmed sense to a model that is adaptive in what might be called the "discovery mode": some kind of storage or memory of the effect of system behaviors on system/environment conditions. This process of observing and remembering what happens when something is done under certain conditions is, of course, learning. A morphogenic model is a model that can learn. Figure 9 is a flow chart of a basic morphogenic (learning) model.

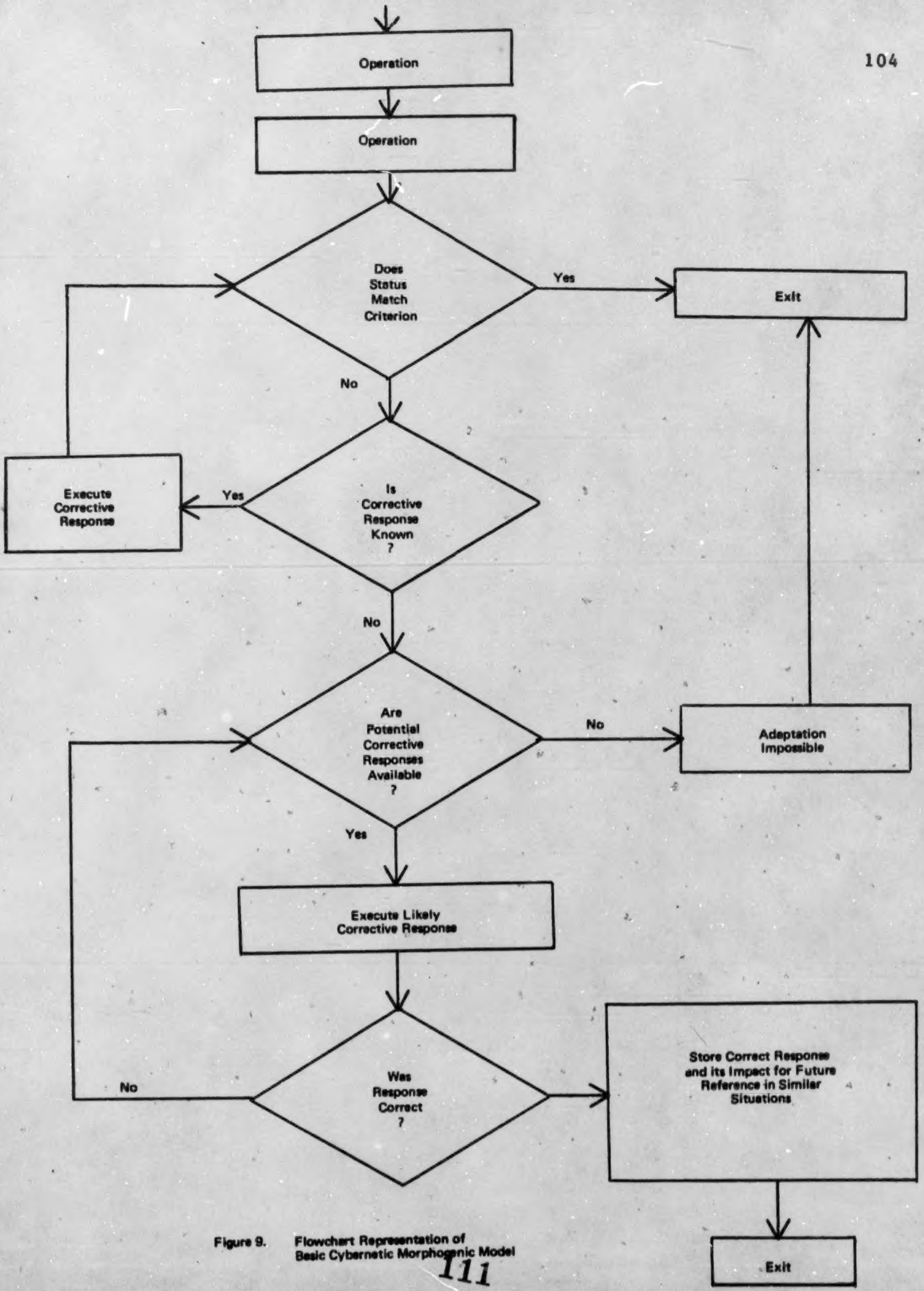

Operation
Operation
Does Status Match Criterion
Yes
Exit
No
Execute Corrective Response
Yes
Is Corrective Response Known ?
No
Are Potential Corrective Responses Available ?
No
Adaptation Impossible
Yes
Execute Likely Corrective Response
No
Was Response Correct ?
Store Correct Response and its Impact for Future Reference in Similar Situations
Exit

Figure 9. Flowchart Representation of Basic Cybernetic Morphogenic Model

A "dry-run" through the flow chart in Figure 9 will show that through this discovery-based adaptive process a system is capable of building increasingly complex adaptive responses to intra-system and environmental conditions. The process is an important part of virtually all real systems that claim the interest of social scientists, although many social questions may be answered without referring to it.

It appears to us that those people whose questions demand that they look at adaptive-learning processes must turn to cybernetic-morphogenic representations of the real systems they are interested in. Certainly attempts to understand morphogenesis have been made at less complex levels of analysis and in different analytic modes. For example, it is common even among adherents of systems theory to attribute morphogenesis to positive feedback loops and goal-seeking to negative feedback loops. However, the following two sets of statements and conclusions reveal the confusion that results by failing to recognize the limitations of certain kinds of models for representing goal-seeking and adaptive learning (morphogenic) processes:

Set I:

> Negative feedback is curcular causal feedback that reduces discrepancy between the status quo and system goals. It is the basic goal seeking mechanism (Buckley, 1967, p. 53, 70).
>
> Complex adaptive systems are goal-seeking systems (p. 52).
>
> Therefore, complex adaptive systems are basically negative feedback systems.

Set II:

> Positive feedback is the basic mechanism of morphogenesis (p. 59).
>
> Complex adaptive systems tend to elaborate structure (that is, they are morphogenic), (p. 58)
>
> Therefore, complex adaptive systems are basically positive feedback systems.

As these statements indicate, explanations of goal-seeking and morphogenesis in the quantitative mode attribute goal-seeking to one mechanism (negative feedback) and morphogenesis to another contrary mechanism (positive feedback). If such were the case, a complex adaptive system could not be goal-seeking and morphogenic at the same time, and yet the statements just cited make it necessary that such should be the case. The problem is resolved by recognizing that goal-seeking and morphogenesis are cybernetic problems; they concern system behaviors and are only indirectly reflected in the system attributes that are dealt with in the quantitative mode. Goal-seeking and morphogenesis are not contrary processes, but rather belong to the same adaptive mechanism with which complex cybernetic systems meet the changing circumstances that surround their goal-seeking efforts.

Buckley, W. Sociology and Modern Systems Theory. Englewood Cliffs: New Jersey: Prentice-Hall, 1967.

APPENDIX D

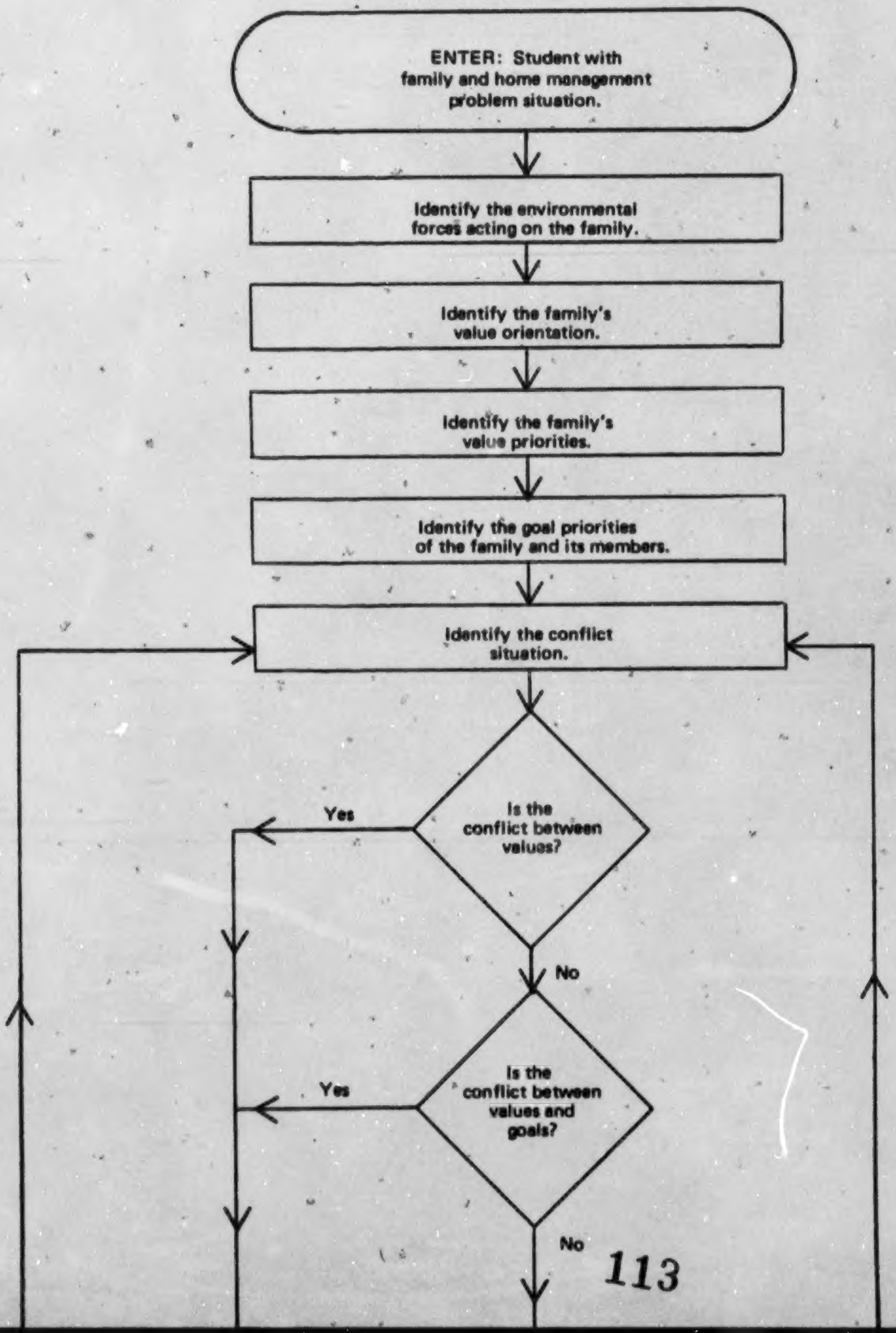
EXAMPLE OF A MODEL FOR USE IN THE AREA OF MANAGEMENT

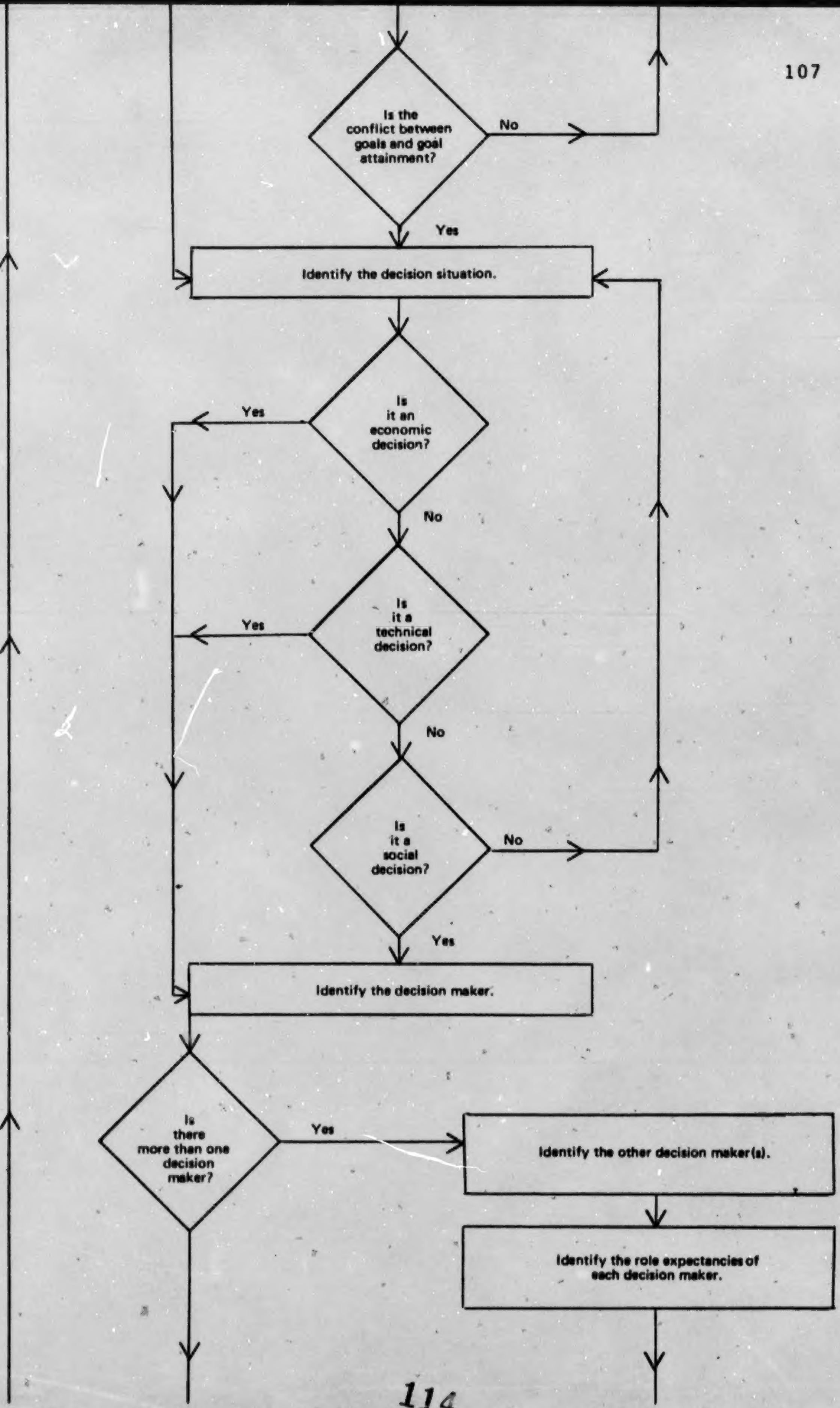
by

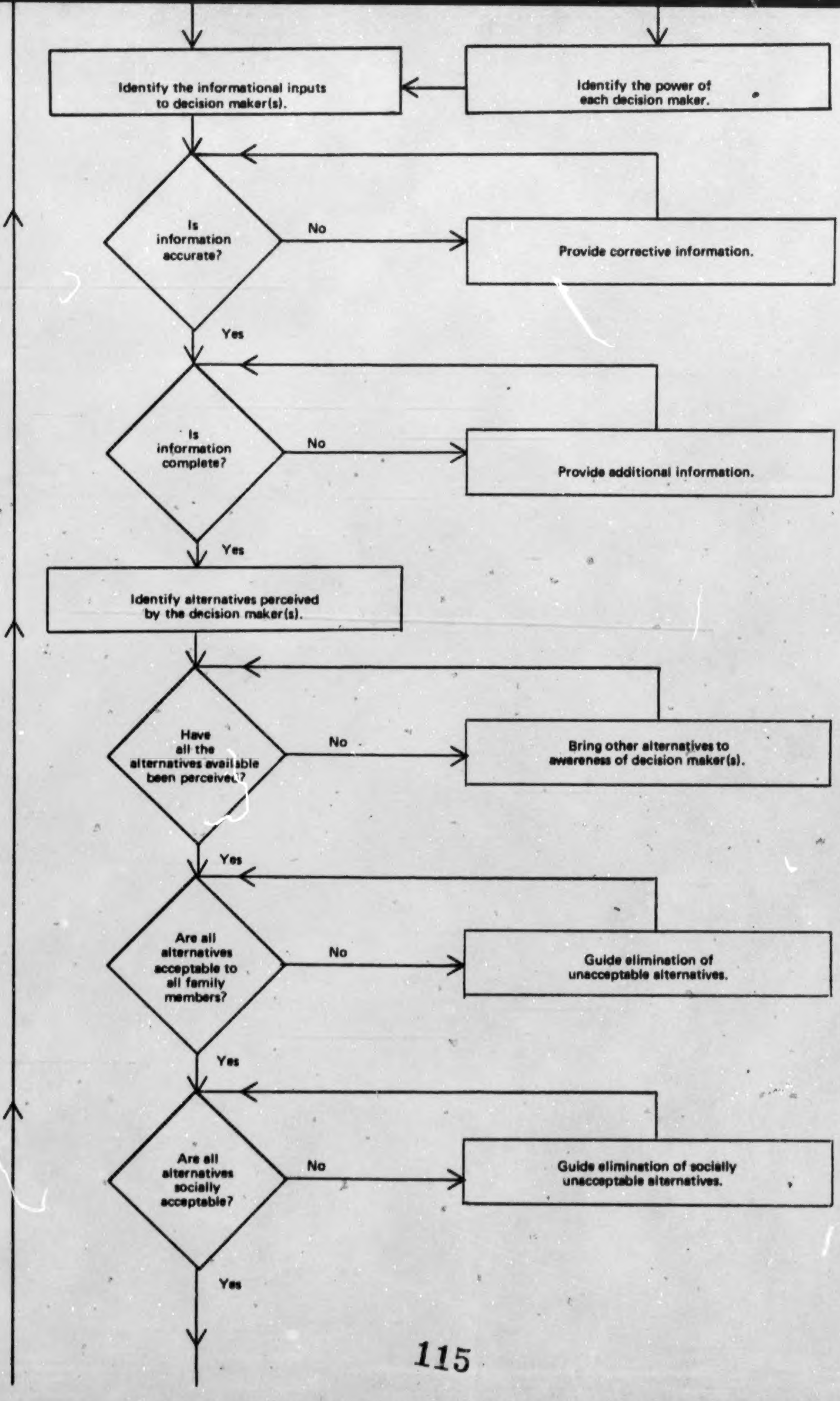
Alberta Dobry

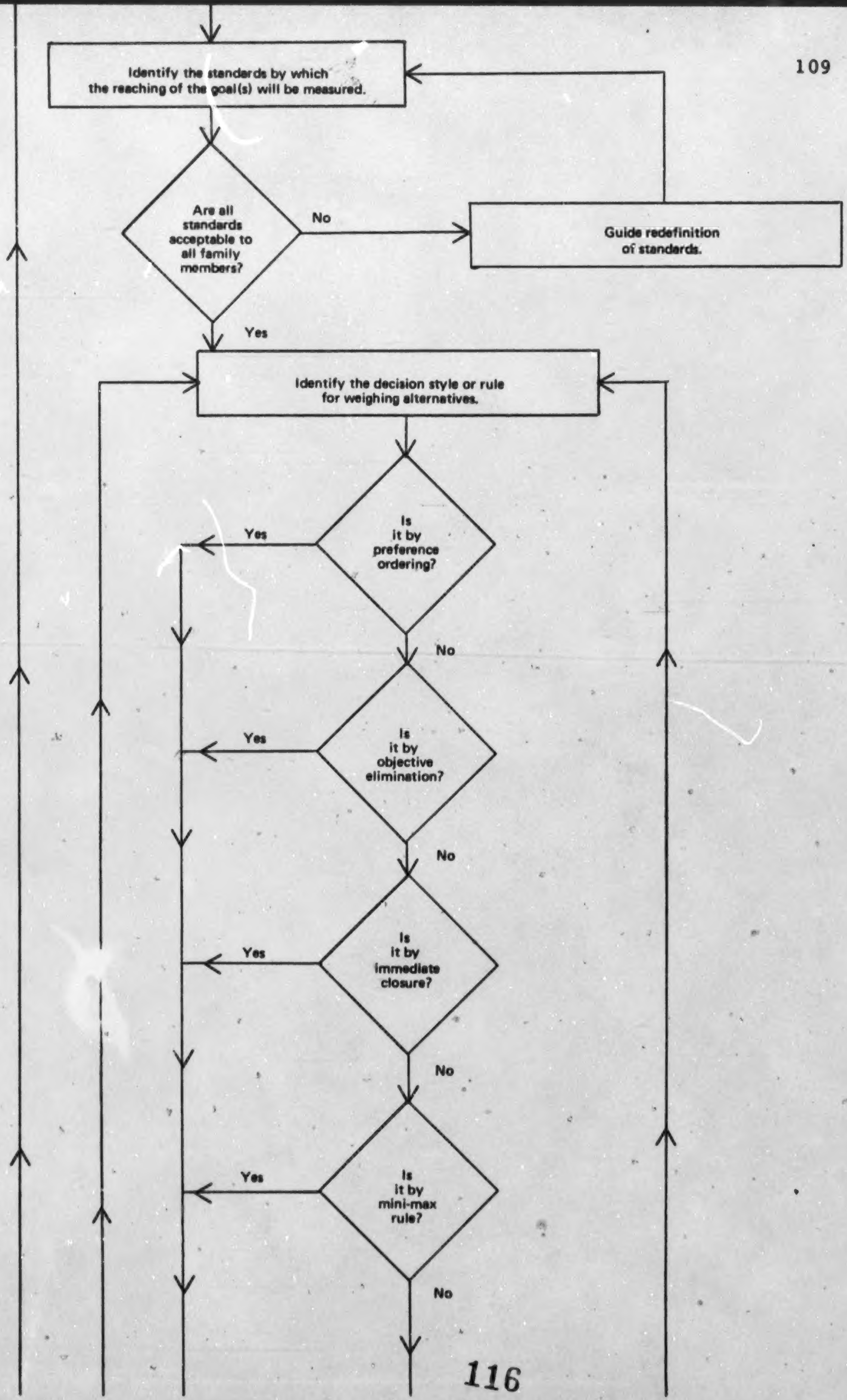
Analysis of Student Competency:

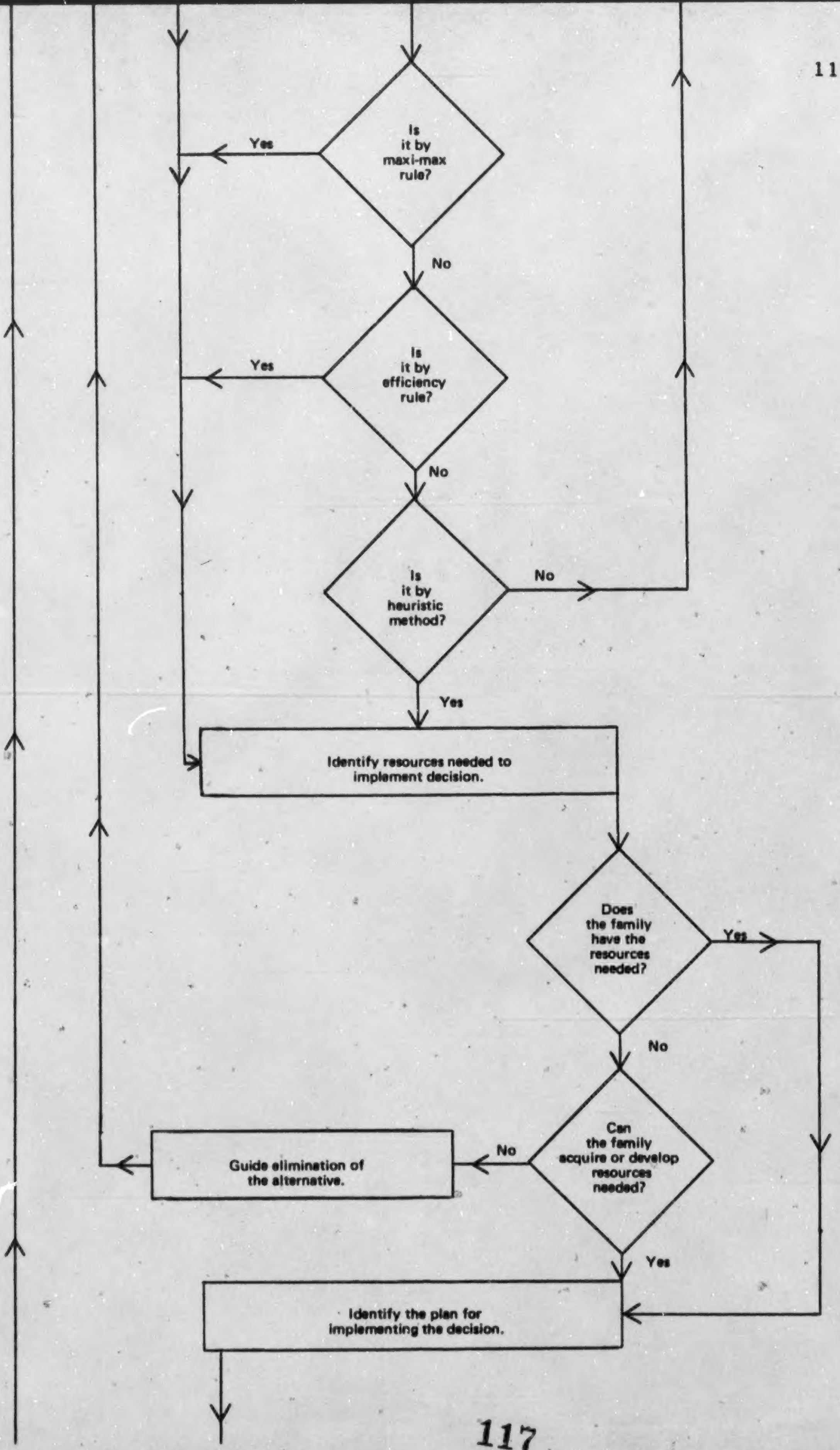
"Ability to analyze a family situation and make decisions concerning courses of action and use of resources appropriate to solving that family's managerial problems."

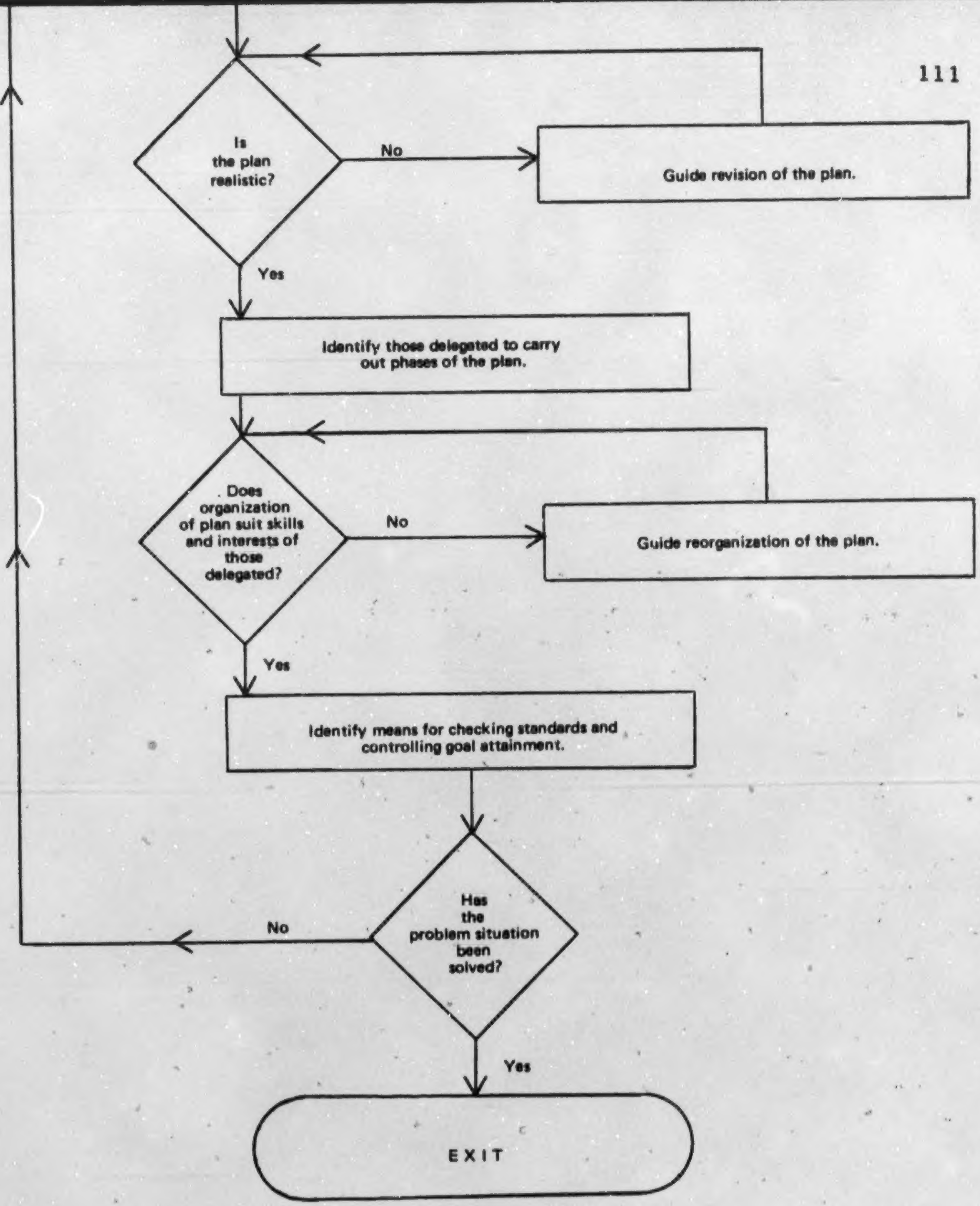

ENTER: Student with family and home management problem situation.
Identify the environmental forces acting on the family.
Identify the family's value orientation.
Identify the family's value priorities.
Identify the goal priorities of the family and its members.
Identify the conflict situation.
Is the conflict between values?
Yes
No
Is the conflict between values and goals?
Yes
No


Is the conflict between goals and goal attainment?
No
Yes
Identify the decision situation.
Is it an economic decision?
Yes
No
Is it a technical decision?
Yes
No
Is it a social decision?
No
Yes
Identify the decision maker.
Is there more than one decision maker?
Yes
Identify the other decision maker(s).
Identify the role expectancies of each decision maker.


Identify the informational inputs to decision maker(s).
Identify the power of each decision maker.
Is information accurate?
No
Provide corrective information.
Yes
Is information complete?
No
Provide additional information.
Yes
Identify alternatives perceived by the decision maker(s).
Have all the alternatives available been perceived?
No
Bring other alternatives to awareness of decision maker(s).
Yes
Are all alternatives acceptable to all family members?
No
Guide elimination of unacceptable alternatives.
Yes
Are all alternatives socially acceptable?
No
Guide elimination of socially unacceptable alternatives.
Yes


Identify the standards by which the reaching of the goal(s) will be measured.
Are all standards acceptable to all family members?
No
Guide redefinition of standards.
Yes
Identify the decision style or rule for weighing alternatives.
Is it by preference ordering?
Yes
No
Is it by objective elimination?
Yes
No
Is it by immediate closure?
Yes
No
Is it by mini-max rule?
Yes
No


Is it by maxi-max rule?
Yes
No
Is it by efficiency rule?
Yes
No
Is it by heuristic method?
No
Yes
Identify resources needed to implement decision.
Does the family have the resources needed?
Yes
No
Can the family acquire or develop resources needed?
No
Guide elimination of the alternative.
Yes
Identify the plan for implementing the decision.


Is the plan realistic?
No
Guide revision of the plan.
Yes
Identify those delegated to carry out phases of the plan.
Does organization of plan suit skills and interests of those delegated?
No
Guide reorganization of the plan.
Yes
Identify means for checking standards and controlling goal attainment.
Has the problem situation been solved?
No
Yes
EXIT

APPENDIX E

DIRECTIONS FOR DEVELOPMENT SUMMARY OF THE MATCHE STRAND WORKSHEETS

1. Explore the materials in the MATCHE box.
2. Using the classification of objectives guide below, identify each module objective by its type. Record your identification in the appropriate space on the worksheet. (Note: There are also enabling objectives in the modules. Since they are directed toward attainment of the module objective(s), we will only identify/classify the larger module objectives.)
3. Examine the activities within each module. If some have been developed and you consider them complete, mark (x) in the "yes" category of the activity column. If not, mark (x) in the "no" column.
4. Review the assessment instruments within the modules. If the objectives require assessment items and some items have been developed and you consider them complete, mark (x) in the "yes" category of the assessment column. If not, mark (x) in the "no" column.
5. Record any ideas or comments in the Notes column as you review the modules.

CLASSIFICATION OF INSTRUCTIONAL OBJECTIVES FREQUENTLY USED IN TEACHER EDUCATION

COGNITIVE	(thinking/intellectual abilities) objectives which specify knowledge, understanding, application, analysis, synthesis, or evaluation.
AFFECTIVE	(feeling/personal commitment) objectives which specify receiving, responding, valuing, organization, or characterization.
PSYCHOMOTOR	(doing/performance) objectives which specify observing, imitating, practicing, or adapting.
CONSEQUENCE	(effect/causation) objectives which require the demonstration in ability to bring about change in others.
EXPLORATORY	(search/review) objectives that direct toward experiences which may have value for prospective teachers even though specific expected outcomes from the experiences may not be identified or identifiable in advance.

April 1975 Worksheet

DEVELOPMENT SUMMARY OF MATCHE CONSUMER APPROACH STRAND

Module Number	Type of Module Objective(s)?	Are Activities Completed?		Is Assessment Completed?		NOTES
		Yes	No	Yes	No	
Core #1						
#2						
#3						
#4						
FHA						
Housing #1						
#2						
#3						
#4						
#5						
#6						
FHA						
Food & Nutrition #1						
#2						
#3						
#4						
#5						
#6						
FHA						
Textiles & Clothing #1						
#2						
#3						
#4						
FHA						
Human Development #1						
#2						
#3						
#4						
#5						
FHA						

DEVELOPMENT SUMMARY OF MATCHE CONSUMER APPROACH STRAND (con't.)

Module Number	Type of Module Objective(s)?	Are Activities Completed?		Is Assessment Completed?		NOTES
		Yes	No	Yes	No	
Management #1						
#2						
#3						
#4						
#5						
#6						
#7						
FHA						

April 1975

Worksheet

DEVELOPMENT SUMMARY OF MATCHE OCCUPATIONAL STRAND

Module Number	Type of Module Objective(s)?	Are Activities Completed?		Is Assessment Completed?		NOTES
		Yes	No	Yes	No	
Core #1						
#2						
#3						
#4						
FHA-HERO						
Housing #1						
#2						
FHA-HERO						
Food & Nutrition #1						
#2						
#3						
FHA-HERO						
Textiles & Clothing #1						
#2						
#3						
FHA-HERO						
Human Development #1						
#2						
#3						
#4						
FHA-HERO						
Management #1						
#2						
FHA-HERO						

April 1975

Worksheet

DEVELOPMENT SUMMARY OF MATCHE ECONOMICALLY DEPRESSED AREAS STRAND

Module Number	Type of Module Objective(s)?	Are Activities Completed?		Is Assessment Completed?		NOTES
		Yes	No	Yes	No	
Core #1						
#2						
#3						
#4						
FHA						
Housing #1						
#2						
#3						
FHA						
Food & Nutrition #1						
#2						
#3						
FHA						
Textiles & Clothing #1						
#2						
FHA						
Human Development #1						
#2						
#3						
FHA						
Management #1						
#2						
#3						
FHA						

GRID FOR OBJECTIVES DEVELOPED IN MATCHE CONSUMER APPROACH STRAND

Directions: Place a tally mark in the appropriate space for each module objective classified on the Development Summary Worksheet.

Modules	Classifications				
	Cognitive	Affective	Psychomotor	Consequence	Exploratory
Core					
Housing					
Food & Nutrition					
Textiles & Clothing					
Human Development					
Management					
TOTALS					

NOTES:

GRID FOR OBJECTIVES DEVELOPED IN MATCHE OCCUPATIONAL STRAND

Directions: Place a tally mark in the appropriate space for each module objective classified on the Development Summary Worksheet.

Modules	Classifications				
	Cognitive	Affective	Psychomotor	Consequence	Exploratory
Core					
Housing					
Food & Nutrition					
Textiles & Clothing					
Human Development					
Management					
TOTALS					

NOTES:

GRID FOR OBJECTIVES DEVELOPED IN MATCHE ECONOMICALLY DEPRESSED AREAS STRAND

Directions: Place a tally mark in the appropriate space for each module objective classified on the Development Summary Worksheet.

Modules	Classifications				
	Cognitive	Affective	Psychomotor	Consequence	Exploratory
Core					
Housing					
Food & Nutrition					
Textiles & Clothing					
Human Development					
Management					
TOTALS					

NOTES:

APPENDIX F

Recommendation
attended 1 day ___
2 days ___

MATCHE I WORKSHOP

Participant Feedback

Please respond to the following topics by checking the response which best reflects the extent to which you believe the information presented will be useful to you.

Check one: administrator ______
teacher ______
other ______

	Extremely useful	Moderately useful	Slightly useful	Not at all useful
1. Information relative to the background, process and product of the MATCHE project.	___	___	___	___
2. Suggested strategies for using the MATCHE management materials.	___	___	___	___
3. Your subject area discussion group process and product.	___	___	___	___
4. The MATCHE modules				
a. consumer approach strand	___	___	___	___
b. occupational strand	___	___	___	___
c. economically depressed area strand	___	___	___	___

5. Additional comments ____

____

____

____

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